

**THE RAILWAY GAZETTE**  
A Journal of Management, Engineering and Operation  
INCORPORATING  
Railway Engineer • TRANSPORT • The Railway News  
The Railway Times • Herapaths Railway Journal • RAILWAY RECORD.  
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## DIESEL RAILWAY TRACTION SUPPLEMENT

The March issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

## GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

## POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

## REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE in that the size of the page has been reduced from 9 in. x 12 in. to 8½ in. x 11½ in. The type area of the page remains the same, namely, 7 in. x 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war

## TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5 p.m.

The office is closed on Saturdays

## ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

## ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

## A Spanish Locomotive Canard

THE position as to the building of locomotives for the Spanish National Railways seems inevitably to cause confusion. When, as was recorded in our January 8 issue, it was reported from Bilbao that the last two of an order for forty locomotives had been delivered, the possibility was quite erroneously entertained in some quarters in this country that the engines had been built in Great Britain. As we explained at the time, they were built by the Sociedad Espanola de Construcciones Babcock & Wilcox, the associated company in Spain of the well-known British undertaking, Babcock & Wilcox Limited. It has Spanish capital and is a Spanish undertaking. These points seem to have been overlooked by the military correspondent of the *Evening Standard* who, in an article published in that newspaper on February 24, declared that "if the Germans used the Spanish railways, however, they would find some British engines there. The last two of a first order of forty engines have been delivered by Babcock & Wilcox to the Spanish National Railways. All forty were built this year and are the same model." Leaving aside the fact that it would be physically impossible for a works to have built forty locomotives this year—they were built during 1942—it is, to say the least, unfortunate that the impression should be created that British builders are supplying locomotives to Spain, in view of the many difficulties which have been experienced in meeting to the full their commitments to other countries. The political implications of statements of this kind might well be weighed by military correspondents. Many of these points are made by Mr. F. W. Vaughan, Secretary, Locomotive Manufacturers' Association, in a letter published on page 234.

## Transport and Holidays

During the debate on transference of labour, which took place in the House of Commons on February 23, Mr. Bevin said he hoped that everyone would encourage the people not to travel. This year was recognised as being most vital for the movement of armed forces and munitions, and there can be no doubt that, in Mr. Bevin's words, the one great help all can give to the war effort is to encourage potential travellers to "stay put." At the weekend, the Ministry of Labour announced that it favoured a week's holiday for industrial undertakings, with two days each at Easter, Whitsuntide, Christmas (or New Year), and one day in August. "Staggered" holidays and holidays-at-home schemes by local authorities were commended by the Ministry, and it added that the Government was anxious that as far as possible holidays should not cause loss of production. It added that the need for reasonable holiday breaks would be even greater this year than in previous years if maximum health and efficiency were to be maintained during what might prove a vital year. Separate plans are being made for holidays in the coal industry.

## Road Transport in the Birmingham Area

The recent appointment of Mr. O. Cecil Power as a Director of the Birmingham & Midland Motor Omnibus Co. Ltd., with which (and its predecessors) he has been associated for nearly 44 years, is a reminder of the vast changes and developments in passenger road transport in the Midlands during this period. In the closing years of the nineteenth century a series of important changes took place in Birmingham district transport, the first of which was that the Birmingham General Omnibus Company, which was a merger of several horse-bus undertakings, went into liquidation in 1899. The assets were purchased from the receiver for the debenture holders by the British Electric Traction Co. Ltd., which had then recently secured a strong foothold in the Black Country by obtaining control of various horse and steam tramways with a view to electrification. The new B.G.O. organisation took over control on September 27, 1899. The parent of the B.E.T. tramway group in this area was the Birmingham & Midland Tramways Limited, and on January 1, 1902, this company took over the B.G.O. undertaking, which hitherto had been worked by a committee as a department of the B.E.T. In April, 1902, Mr. Power became Traffic Manager, and as such controlled a stud of over 1,000 horses and more than 100 buses and coaches. Early in 1903, motor competition was begun by a company called the Birmingham Motor Express Co. Ltd., with two Napier charabancs, working on the New Street and Hagley Road route, with its ruling gradient of 1 in 10. Double-deck Milnes-Daimlers were introduced in February, 1904, and to counter this the B.E.T. decided to form its own motorbus unit. The Birmingham & Midland Motor Omnibus Co. Ltd. was incorporated on November 26, 1904, and took over the buses of the Birmingham & Midland Tramways Limited, and of the City of Birmingham Tramways

Limited, another B.E.T. company. During 1905 the "Express" company was bought, and thus was laid the foundations of the present Midland "Red" business, with Mr. Power as Traffic Manager. Despite setbacks in the early years, including a period during which the expensive primitive motor was temporarily abandoned in favour of the then more economical horse, the company's traffic has grown under Mr. Power's able guidance to its present outstanding position. The fleet of 1,400 Midland "Red" buses runs upwards of 45 million miles annually and carries more than 300 million passengers. In 1929 the G.W.R. and L.M.S.R. together acquired 50 per cent. of the ordinary shares of the Birmingham & Midland Motor Omnibus Co. Ltd.

### Railway Part in North African Expedition

The part which is played by the British railways in military operations in distant overseas theatres of war is not always realised as clearly as are duties which fall on the lines at such times as, for instance, the evacuation of Dunkirk. How great, for example, was the strain placed on the railways of Great Britain by the successful landing in North Africa was shown by the Secretary of State for War during a debate on the Army Estimates in the House of Commons on February 25. Preparations for that adventure began as long ago as last March, and included the provision, collection, packing, marking, and dispatch from depots to ports of hundreds of thousands of tons of stores, as well as many thousands of tons of vehicles. Later, 185,000 men, 20,000 vehicles, and 220,000 tons of stores, all had to be moved in a period of about three weeks from billets and depots to ports. This required the running of 440 special troop trains, 680 special freight trains, and 15,000 railway wagons by ordinary goods services. This traffic, of course, had to be superimposed on the movement of other essential carriage of men and materials. Furthermore, it had to be done with as much secrecy as possible as to its ultimate end, and in this connection it is perhaps a tribute to the great numbers of railway staff, who must have handled, or been aware of, the movement, that the element of surprise, which was so vital a feature of the operation, was safeguarded.

### Overseas Railway Traffic

Among Argentine railway securities the market tendency last week was dull, in the absence of any further information as to their expenditure. Gross traffic, however, continue to expand, and for the 33rd and 34th weeks of the financial year the substantial increases of £84,501 and £77,940 were shown by the Central Argentine and the Buenos Ayres Great Southern, respectively. In the same period other advances recorded are of £21,420 on the Buenos Ayres Western, of £12,360 on the Buenos Ayres & Pacific, of £8,790 on the Entre Rios, and of £3,300 on the Argentine North Eastern. Antofagasta traffic from January 1 to February 21, 1943, amount to £216,150, an improvement of £71,240. The Great Western of Brazil, with gross receipts of £128,700, shows an increase of £35,700 since the beginning of 1943, and the corresponding figure of £222,097 for the Leopoldina is £8,236 up.

	No. of week	Weekly traffic £	Inc. or decrease £	Aggregate traffic £	Inc. or decrease £
Buenos Ayres & Pacific*	34th	115,200	+6,900	3,234,240	+397,020
Buenos Ayres Great Southern*	34th	207,300	+35,700	5,314,740	+482,400
Buenos Ayres Western*	34th	55,680	+5,040	1,802,340	+80,760
Central Argentine*	34th	148,392	+45,342	4,456,569	+864,246
Canadian Pacific	7th	924,800	+55,000	6,597,400	+204,600

\* Pesos converted at 16½ to £

The recent improvement in Central Uruguay traffic has brought the total for the 34 weeks of the financial year to £870,155, an advance of £71,306.

### "Rebuilding Britain"

An exhibition opened by Sir William Beveridge at the National Gallery last week entitled "Rebuilding Britain," and organised by the Reconstruction Committee of the Royal Institute of British Architects, embraces almost every aspect of planning in post-war Great Britain. In the exhibition, as it was in Sir William Beveridge's opening speech, the importance of "same transport" is stressed. By the same use of transport, said Sir William, he meant using wisely our immense and growing means of transportation to spread industry and population healthily, instead of using them to jam more and more people into the great cities and their suburbs. Shortly before the war, Mr. Herbert Morrison had run a campaign for a green belt round London. At the same time the London Passenger Transport Board was helping to destroy green spaces round London 10 times as fast as anyone could preserve them. Every time it opened a station a new green space was doomed. That was not a sane use of transport. Nor was it a sane use of transport to

make human beings travel, for 2 or 3 hours every day, between their work and their dormitory suburbs rather than spread out the factories and offices and make goods and letters travel instead; or to fix freights so that there was an advantage in crowding together towns. The exhibition itself comprises a series of maps and diagrams showing how the need for transport can be reduced by good planning, and suggesting that alternative methods of transport should be considered. For example, coal might come from the pit by train, or gas might come by pipe, or electricity might come by wire. The relative efficiency of these alternatives needed study in each particular case.

### Londonderry & Lough Swilly Railway Company

Results for the year 1942 are noteworthy for the fact that a dividend of 1 per cent. is to be paid on the ordinary stock, which has received no return since the 3½ per cent. paid for the year 1922. The principal business now carried on by this company is road transport, which showed a profit of £18,360 in 1942, against £16,047 in 1941. Railway gross receipts increased from £29,755 to £44,700, but railway net receipts fell from £2,352 to £787. Comparisons for three years follow:—

	1940	1941	1942
Gross receipts from businesses	90,453	132,419	149,567
Expenditure	91,216	115,606	130,393
Net receipts	Dr. 763	16,813	19,174
Miscellaneous receipts (net)	461	539	595
Total net income	Dr. 302	17,352	19,769

Railway passenger receipts increased from £4,678 to £18,616, and first class earnings again figure in the returns, amounting to £967, after a year's absence. By 1940 the receipts from this class of traffic had dwindled to £2. Second class bookings were abolished after 1928. Goods train receipts in 1942 were £23,935, against £23,831 in 1941, the net improvement being due to livestock and "other minerals." After providing for preference and ordinary dividends a credit balance of £1,046 is to be carried forward.

### British Standard Electrical Glossary

At the outbreak of the war a revision of the British Standards glossary of terms used in electrical engineering had already been begun, partly in connection with preparations by the British Standards Institution for drafting proposals for the revision of the international vocabulary published by the International Electro-Technical Commission. As the war progressed, and practically every important country became involved, it was realised that international co-operation would be impossible for some time to come, and work on the I.E.C. vocabulary was suspended. It was felt, however, that the revision of the British Standards glossary should proceed, particularly as the work was out of print and the type was lost through enemy action. There was also evidence of an increased demand for an authoritative manual of electrical nomenclature, in view of the considerable advances made in various branches of electrical work, and the increasing number of persons engaged in electrical activities. The progress of the revision has necessarily been retarded by the fact that all the experts co-operating in the work have heavy wartime commitments, but, with the active support of the Electrical Research Association, the stage has now been reached when the publication of the revision in sections can be begun. The main portion of the work will be issued in eight parts, published at 2s. a part, and brief details are given in our "Publications Received" section at page 235.

### The Urgency of Paper Salvage

Despite the efforts made by most sections of the community, there is a weekly deficit of several thousands of tons of waste paper for war needs; 100,000 tons are urgently needed to meet the immediate demand of war factories, to supply packaging for food, medical supplies, etc., and for other essential purposes. With the much reduced amount of paper being put into current circulation, inevitably the day-to-day collections of waste have suffered. Therefore, an intensive effort has to be made to dig out the accumulations of business houses, manufacturers, professions, and institutions. Although much has already been done in this direction, it is believed that there are still hundreds of thousands of tons to be obtained from these sources. The railway companies have already made outstanding efforts, as we have recorded from time to time, but it is possible that there are still railway sources capable of being tapped, especially if the decisions about what may be sacrificed are universally recognised. Manufacturers, particularly those with depleted stocks, have perhaps felt tempted to make a gesture and then leave the matter. A most desirable feature is the appointment of a Salvage Officer, who, with the backing of the management, explores every



opportunity of turning out all old and mainly obsolete records—old correspondence, files, ledgers and other account books, guard books, out-of-date reference books and trade catalogues, old invoices, receipts and cheques, copy estimates, sales graphs, blue prints, and so forth.

### Soil Mechanics and the Engineer

During the last few years a great deal of attention has been paid to the question of soil mechanics, and much research work has taken place. The subject is of special interest to the railway engineer, because of the more exact knowledge available as to the incidence of landslides on embankments and cuttings, and the allowable pressures for the foundations of heavy structures. From the outset in planning the execution of any special engineering project, such as a railway, the engineer has to deal with problems in which a knowledge of geology and soil mechanics can be of the greatest value in arriving at an economic solution. The alignments and gradients of the line may be largely determined by the nature of the strata into which excavation may have to be made for cuttings or tunnels, or which may have to be considered for the formation of banks. Some reference to the matter was made by Mr. A. S. Quartermaine, Chief Engineer, Great Western Railway, in a paper read before the Railway Engineering Division of the Institution of Civil Engineers, an abstract of which was given to our February 26 issue. Mr. George Ellison, Chief Engineer of the Southern Railway, has conducted investigations into soil mechanics, and he made some comment on them in a paper which he read before the Railway Engineering Division of the Institution of Civil Engineers, of which an abstract appeared in our January 22 issue. On page 242 of the current issue is an article based on notes relating to those investigations, which have been compiled by Mr. A. H. Toms, who has acted as Assistant to Mr. Ellison in these matters.

### Reading the Wrong Signals

The accident near Didcot, G.W.R., on November 13, 1942, the report on which by Major G. R. S. Wilson is summarised at page 252, was another of those cases where an experienced driver believes himself to be travelling on a certain line when he is actually on another and proceeds to read signals pulled off for a parallel running train. When he is travelling towards loop-outlet trap points nothing can save the situation if he is not aware in time of his error. In this case the man who, with his fireman, was killed, appears to have realised the position at the last moment when overtaken by the express, the last nine vehicles of which eventually fouled the wreckage of his train, with serious consequences. The diagram issued with the report makes the essential facts quite clear and there is no dispute about them. Each signal concerned is correctly placed to the left of the lines it applies to and Major Wilson makes no recommendation of any kind. There are no doubt good reasons why the G.W.R. maintains the right-hand device, but it may be contended that one result of it is that with two parallel lines and signals correctly placed, a driver may be looking more directly at a signal not applying to him than at one which does. We have heard it suggested that a permanently-dead A.T.C. ramp in rear of all loop outlet signals might be some help in checking mistakes of this kind, but it is unfortunately not easy to destroy illusions of this sort.

### Steam Engine Efficiency

Champions of the internal-combustion engine are in the habit of comparing its thermal efficiency of 30 to 40 per cent. with the 8 to 12 per cent. of the steam locomotive but in this comparison one important point is overlooked. The internal combustion engine almost certainly will be using a fuel prepared in some way that involves the expenditure of considerable amounts of power and heat, all of which should be debited against the internal-combustion engine in any honest comparison. A common, but erroneous, idea is that we would be conserving our fuel resources by scrapping all steam locomotives and utilising in their place diesel locomotives burning oil made from coal. However, so long as it requires the expenditure of roughly four tons of coal to obtain one ton of diesel oil, there will be a loss rather than a gain in thermal efficiency. The ability of the steam engine to consume a fuel coming straight out of the ground is an advantage that is rarely taken into account; when due allowance is made for it, the steam locomotive is seen to be not such an archaic monstrosity after all. Failing a supply of natural oil, it is actually more efficient than the diesel, not only in the economic sense, but even thermodynamically.

## Great Western Railway Company

THE full report and accounts are issued in the modified form approved by the Ministry of War Transport. Reference is made to the fact that the Government has issued a White Paper (Cmd. 6403) outlining proposals for further legislation to provide for payments in respect of war damage to, and contributions from public utility undertakings, including railway undertakings. It is understood that such contributions will not exceed 50 per cent. of the amount of damage. Until the Bill is introduced into Parliament it is not practicable to give any detailed information of the complete scheme, but the White Paper is under examination by the main-line railway companies and the London Passenger Transport Board and discussions are taking place with the Government. As in the year 1941, no specific allocation has been made in the accounts in respect of war damage, although the incidence of the liability has been borne in mind.

The Bill promoted by the main-line railway companies for the purpose of enabling them to give guarantees and to make financial and other arrangements in connection with the acquisition by Hay's Wharf Cartage Co. Ltd. of the share capital of Thos. Cook & Son Ltd. received the Royal Assent on June 11, 1942. All the issued capital of Thos. Cook & Son Ltd. has since been acquired by Hay's Wharf Cartage Co. Ltd. in which the main-line railway companies have a controlling interest. Results for the past three years are as follow:—

	1940	1941	1942
Total expenditure on capital account ...	188,087,111	188,484,231	188,779,668
Joint lines—company's proportion net revenue ...	142,273	142,273	142,273
Miscellaneous receipts (net) ...	*289,695	*268,051	*268,488
Net revenue ...	6,793,987	6,931,767	6,932,746
Interest on loans and debenture stocks ...	1,649,854	1,649,855	1,649,855
Dividends on rent charge, guaranteed, and preference stocks ...	3,339,914	3,339,914	3,339,914
Balance after payment of preference dividends ...	1,804,219	1,941,998	1,942,977
Dividend on ordinary stock ...	1,717,189	1,717,189	1,931,838
Rate per cent. ...	4	4	4½
Appropriation to contingency fund ...	—	250,000	—
Surplus or deficit (+ or -) ...	+87,030	-25,191	+11,139
Balance brought forward from previous year ...	202,099	289,129	263,938
Balance carried forward to subsequent year ...	289,129	263,938	275,077

\* Other than those included in financial arrangements with Government

Net revenue for the year shows an advance of £979 at £6,932,746. There is no appropriation in 1942 to contingency fund, which in 1941 received £250,000. Dividends on the ordinary stock for the past ten years have been as follow:—

1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
3	3	3	3	4	4	4	4	4	4½

Miscellaneous receipts (net) from interest and dividends derived from investments in other undertakings amounted to £268,488. Of this amount, £231,966 was received from investments in associated bus companies, comparing with £232,047 in 1941. From Hay's Wharf Cartage Co. Ltd. the return in 1942 was £35,301, against £21,669 in 1941. "General interest" showed a debit of £289 in 1942, comparing with a credit of £11,825 in the previous year.

## London & North Eastern Railway Company

As in 1941, in accordance with the requirements of the Ministry of War Transport, the financial accounts for the year 1942 are presented in a condensed form and the statistical returns are suspended. The Government has issued a White Paper (Cmd. 6403) in which its proposals with regard to the legislation affecting public utility undertakings, foreshadowed in the directors' report for the year 1941, have been outlined. The White Paper is under examination by the four main-line railway companies and the London Passenger Transport Board, and discussions are already taking place with the Government. At this stage, while the proposed Bill is not yet in draft, it is not practicable to give detailed information as to the complete scheme.

The railway control agreement provides that during the period of control, if the amount actually expended on maintenance during any one year is less than the amount of the average charge for maintenance during the base period of the three years 1935-6-7, subject to adjustment as laid down in the control agreement, the difference shall be paid into a trust fund in the joint names of a nominee of the Government and a nominee of the controlled undertaking. Separate trust funds for each of the four main-line railway companies and the London Passenger Transport Board have now been constituted under the terms of the relevant trust deeds which in each case appoint managing trustees and a custodian trustee, the latter acting on the joint directions of the managing trustees. Under the trust deed relating to this company the managing trustees

are Sir Reginald Hill (nominated by the Minister) and Mr. W. K. Whigham, one of the directors of the company; and the custodian trustee is the Treasury Solicitor. Regarding the "J" joint lines, arrangements have been made by which the unspent balances of the charges for maintenance by those undertakings will be incorporated in the trust funds of the relevant parent companies. The Bill promoted by the four main-line railway companies relating to arrangements arising out of the acquisition by Hay's Wharfage Cartage Co. Ltd. of the share capital of Thos. Cook & Son Ltd., received the Royal Assent on June 11, 1942.

As shown in the preliminary statement published in THE RAILWAY GAZETTE of February 26, the net revenue for the year 1942 was £10,700,599, an increase of £53,572 in comparison with 1941. Adding the balance of £86,675 brought forward, makes a total of £10,787,274 and appropriating £200,000 to contingency fund leaves a balance of £10,587,274 available for distribution. After providing for all fixed charges and dividends on the guaranteed stocks, and meeting the dividends on the 4 per cent. first preference stock and the 5 per cent. redeemable preference stock (1955), there remains a balance of £1,814,708 which permits of a dividend of 2½ per cent. on the 4 per cent. second preference stock, leaving £78,476 to be carried forward. Dividend payments for the past 10 years are shown in the following table:—

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Prof. ord., 5% ...	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2nd pref., 4% ...	Nil	Nil	Nil	1½	1½	Nil	2	2	2½	2½
1st pref., 4% ...	2	3½	3½	4	4	Nil	4	4	4	4
Red. pref., 5% ...	2½	4½	4½	5	5	Nil	5	5	5	5

The miscellaneous net receipts of £515,775 shown for 1942 include £475,339 dividends from associated bus companies. They also include £6,375 (£4,781) from Currie & Co. (Newcastle) Ltd., and £35,297 (£21,665) from Hay's Wharf Cartage Co. Ltd. Results of the whole undertaking for the past three years are summarised in the accompanying table:—

	1940	1941	1942
Total expenditure on capital account ...	360,878,911	361,221,614	361,258,965
Joint lines—company's proportion net revenue ...	350,558	350,558	350,558
Miscellaneous receipts (net) ...	483,279*	502,257*	515,775*
Net revenue ...	10,350,992	10,647,027	10,700,599
Appropriation to contingency fund ...	250,000	300,000	200,000
Interest on loans and debenture stocks, etc. ...	4,215,907	4,214,637	4,212,387
Dividends on guaranteed and preference stocks ...	5,883,023	6,131,056	6,296,411
Balance after payment of preference dividends ...	2,062	1,334	Dr. 8,199
Balance brought forward from previous year ...	83,279	85,341	86,675
Balance carried forward to subsequent year ...	85,341	86,675	78,476

\* Other than those included in financial arrangements with Government

Discussions have taken place between the four main-line railway companies and the Railway Assessment Authority concerning the companies' cumulo valuation for rating in England for the third railway quinquennial period from April, 1941. These valuations are determinable by reference to the average net receipts for the five years 1935-1939 inclusive, and in the case of each company such receipts are higher than those of the years 1930-34 inclusive which were applicable to the previous quinquennial period. Discussions between the companies and the authority revealed a divergence of view, but in order to avoid protracted litigation under present conditions, the authority has proposed and the companies have accepted valuations somewhat higher than those for the second quinquennial period, it being understood that neither the authority nor the companies are to be prejudiced as respects future valuations. The valuation proposed for this company is £1,281,553, as compared with £1,100,000 for the second quinquennial period. As regards Scotland the valuations for the third quinquennial period which will come into force at Whitsunday, 1943, are now under consideration.

### Southern Railway Company

CONTROL of the undertaking by the Minister of War Transport continued during the year 1942 in accordance with the Order made under the Defence Regulations, 1939. As last year, a variation in the usual form of accounts and statistical returns consequent on Government Control has been authorised by the Minister of War Transport. Under the terms of the agreement made with the Government and completed on May 29, 1942, the annual sum payable to this company is £6,607,639, and in addition an annual sum of £300,000, representing interest on the £7,500,000 4 per cent. redeemable debenture stock (1970-80) issued by the company in January, 1939, is chargeable as an expense to the control net revenue account. The preliminary statement by the directors published in THE RAILWAY GAZETTE of February 26, 1943, shows that the net revenue for the year 1942 amounts to £6,913,514, a decrease

compared with that for the year 1941 of £20,746. The railway control agreement provides for the allowance to the controlled undertakings of standard charges for maintenance on the basis of an average pre-war charge adjusted for variations in assets and in price levels. If the actual expenditure in any year is less than the adjusted standard, the difference, that is, the money unspent, is to be paid into a trust fund in the joint names of a nominee of the Government and a nominee of the controlled undertaking. Separate trust funds for each of the four main-line railway companies and the London Passenger Transport Board have now been constituted.

The White Paper (Cmd. 6403) formulates the main proposals of the Government for legislation respecting war damage to public utility undertakings (including railway undertakings) which are, in general, excluded from the operation of the War Damage Act, 1941. In these proposals, for the purpose of contributions public utility undertakings will fall into nine groups, one of which will be the railway group, and the amount of the contributions of the undertaking will be related to the total war damage of the group. The proposals are now being examined by the four main-line companies and the London Passenger Transport Board and discussed with the Government. No specific provision has been made in the 1942 accounts for this company's ultimate liability in respect of war damage contributions but the liability has been taken into consideration in preparing the accounts. The Bill promoted by the four main-line railway companies enabling them to make financial and other arrangements in connection with the acquisition by Hay's Wharf Cartage Co. Ltd. (in which the four companies hold a controlling interest) of the share capital of Thos. Cook & Son Ltd., received the Royal Assent on June 11, 1942, and an agreement has been completed under which Hay's Wharf Cartage Co. Ltd. has acquired the whole of the issued share capital of Thos. Cook & Son Ltd.

Dividends for the past ten years are given below:—

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Prof. ordinary ...	3	4	5	5	5	5	5	5	5	5
Def. ordinary ...	Nil	Nil	Nil	1½	1½	Nil	1½	1½	1½	1½

Among the miscellaneous receipts are £35,312 (£21,680) from Hay's Wharf Cartage Co. Ltd. The balance sheet shows £2,839,207 investments in Government securities, £1,350,000 in tax reserve certificates, and £2,014,425 (£1,989,425) in road transport undertakings. The balance sheet also shows the elimination of the electrification of lines suspense account which at the end of 1941 stood at £205,473. The alternating current system adopted by the L.B. & S.C.R. in 1909 was finally superseded in 1929 by the direct current system. The suspense account relating to this change stood in 1932 at £1,456,238, and has been reduced annually since that time. In the following table the chief financial items of the company for each of the past three years are summarised:—

	1940	1941	1942
Total expenditure on capital account ...	174,834,658	174,973,903	175,168,167
Joint lines—company's proportion net revenue ...	Dr. 40,368	Dr. 38,914	Dr. 39,705
Miscellaneous receipts (net) ...	*185,989	*191,291	*193,255
Net revenue ...	6,755,790	6,934,260	6,913,514
Interest on loans, debenture stocks, etc. ...	2,243,167	2,243,167	2,243,167
Dividends on guaranteed and preference stocks ...	2,751,278	2,751,278	2,751,278
Balance after payment of preference dividends ...	1,761,345	1,939,815	1,919,069
Dividend on ordinary stocks ...	1,772,958	1,930,409	1,930,409
Rate per cent ...			
Preferred ordinary ...	5	5	5
Deferred ordinary ...	1½	1½	1½
Surplus or deficit (+ or -) ...	-11,613	+9,406	-11,340
Balance brought forward from previous year ...	103,543	91,930	101,336
Balance carried forward to subsequent year ...	91,930	101,336	89,996

\* Other than those included in financial arrangements with Government

Some divergence of view between the four main-line railway companies and the Railway Assessment Authority has arisen concerning the companies' cumulo valuations for rating for the third railway quinquennial period from April, 1941. These valuations must be determined by reference to the average net receipts of the five years 1935-39, and in the case of each company, such receipts are higher than those of the period (1930-34) by reference to which the valuations for the second railway quinquennial period, ended March, 1941, were made. To avoid protracted litigation, each company has agreed to accept a valuation proposed by the authority which is higher than that for the second quinquennial period, such acceptance to be without prejudice, on either side, respecting future valuations. The valuation proposed for this company is £1,339,806, as compared with £1,150,000, the valuation for the second quinquennial period.

### A Railway Publicity Pioneer

WITH the death of W. H. Fraser, late Publicity Agent of the G.W.R., whose funeral took place at Slough on February 23, passes a pioneer in the railway publicity world. It seems strange that he should have spent 26 years of his railway life in the Engineering, Chief Accountant's and Surveyor's Depart-



ments before journalism beckoned him to tread the road of his famous brother, the late Lovat Fraser, but so it was. A bright but dormant talent was only waiting to be given its chance, which it had when, after the Armistice, he broke away from his more prosaic surroundings to engage in special publicity work for the then Railway Executive Committee, and well he did it. It was a one-man job and success was not to be attained without taking risks; but Fraser was never afraid to take risks when playing for worth-while stakes, with the result that the railways for the first time in their history got a real live press publicity, and, at a time when great problems concerned with the transition from war to peace had to be faced. From then onwards railway publicity ceased to be the Cinderella of the administration and began to be regarded as an alluring princess.

When, in 1922, W. H. Fraser returned to Paddington it was to infuse new life into the Publicity Department of the G.W.R. So successful was he in the discovery and use of railway "news" that inquiry was often made from outside as to its cost to the company! No greater tribute could have been paid him, for apart from his unfailing "news" instinct his success was largely due to one golden rule—never to send out anything that was not "news." He was also the originator of the co-operative plan of advertising between the railway and holiday resorts whereby the company contributed financially to press advertising schemes which benefited both the railway and the resort. From slow beginnings this idea developed and spread to all parts of the country. Not only did it bring revenue to the joint participants but it was popular with the newspapers which were quick to recognise a valuable addition to the advertising columns. And so we cherish the memory of one known not for his good works in the business sense alone, but for all those little things, so familiar to his friends and colleagues, that made up a lovable character.

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### War Advance Claim by Senior Railway Staff

THE letters we have published from senior members of the railway staff, although representative, are actually only a small proportion of those received. It is abundantly clear from our post-bag that many of the railway staff in receipt of salaries between £500 and £1,000 a year suffer from a sense of grievance at their inability to secure comparable treatment with the staff earning between £350 and £500 a year in the matter of the war advance, additional hours worked (both week days and Sundays in many cases), and loss of holidays, not to mention the additional responsibilities they have been called on to shoulder as the direct result of war conditions. The figures quoted by "Fairplay" in our last issue clearly reveal the manner in which those receiving salaries of over £500 are being prejudiced and we understand that in some cases the disparity between the total remuneration of staff with basic salaries of £500 and £550 respectively are even more marked than those shown. Moreover, as was pointed out in a letter in our February 12 issue, in the depression periods 1928-30 and 1931-37, the senior staff accepted a percentage deduction which was slightly more than that applied to the remainder of the staff.

It unfortunately appears to be clear, however, that the Treasury will not at present recede from its attitude that it cannot agree to the payment of a war advance to railway staff receiving salaries over £500 a year. In these circumstances it is most improbable that it would agree to the railway companies paying the war advance or any similar amount out of their own resources, that is, outside the control account, as suggested by one of our correspondents. There this particular matter must be left for the moment, but there still remain three points on which this section of the staff has a right to expect some financial recognition in view of the tremendous task which has been accomplished so smoothly and silently by the railways since the outbreak of war. These are, the failure to obtain similar treatment with other staff for annual leave which the war situation did not permit members to take and some financial recognition for (a) the many additional hours worked on weekdays and Sundays beyond the normal rostered hours, and (b) additional wartime responsibilities. We gather that members of the Civil Service receiving salaries over £500 do not receive payment in lieu of holidays or for overtime, but this is not necessarily a conclusive argument, for conditions of employment in the Civil Service and railway service differ widely in several respects (including the award of honours!). In any case, the payment to certain sections of the railway staff of aggregation allowances, representing a percentage of salary in lieu of payment of actual hours worked, were a regular feature of railway practice pre-war and one way of remedying the anomalies would be to extend this principle to additional staff.

As to the much heavier responsibilities now being carried by senior

railway officials, the actual pool receipts for 1942 are not yet known, but unofficial estimates range from £85 to £90 millions, as compared with the guaranteed rental of just over £43 millions. Whether these figures be correct or not, there can be no doubt that the British railways have accomplished a magnificent task during 1942, notwithstanding the handicaps of blackout and war conditions, and it will be readily realised that the responsibilities of the senior railway staff have been greatly increased compared with pre-war conditions. Railway conditions of service already provide for the payment of higher duty pay to staff below special class whose responsibilities are temporarily increased but the extension of this principle to staff above £500 a year might prove very difficult in practice. We feel sure that the railway managements fully recognise the justice of the representations which have been made, but their practical difficulty is to find some means of treating this important section of the staff fairly within the limitations set by the Treasury. The matter is still being considered and, when a decision is reached, we trust it will be borne in mind that representations were originally made nearly two years ago.

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### Conveyance of Flowers by Railway

UP to the present, prosecutions for breaches of the Transport of Flowers Order, 1943, have been confined to cases where passengers have taken with them in the guise of luggage, suitcases, and similar receptacles filled with flowers. Each prosecution has been successful, but the deterrent to the continuance of such attempted evasions of the Order has not been the fines inflicted, which range from £5 to £20, but the decision of the magistrates that the flowers were to be confiscated. In the first cases taken under the Order, the flowers confiscated were estimated to be worth no less than £700, and by direction of the magistrate they were distributed to local hospitals.

We are awaiting with keen interest, however, news of the first prosecution under that section of the Order which provides that "a railway company may in its absolute discretion permit a passenger to carry with him in his compartment, for purposes unconnected with trade or business, a small quantity of flowers unpacked, or so packed as to disclose their nature on sight." A familiar feature for many years of railway agreements with traders has been the phrase "with the consent of the company; such consent not to be unreasonably withheld." Such a clause depends on the definition of "reasonableness" on which an arbitrator's opinion can be secured. The phrase used in the Transport of Flowers Order is so unusual and so wide, however, that it raises the most intriguing implications. Are the words "a railway company" to be interpreted as meaning any servant of the company acting within the scope of his authority? If so, this opens up a wide vista for speculation. Would a passenger have any right to challenge the action of a porter at, say, Gwaun-cae-Gurwen, who, through being allergic to geranium-scented hair oil provided by over-fond parents in his youth, declines to permit more than one small bunch of the flowers to be placed in a compartment, while allowing another passenger to carry several bunches of hollyhocks because of the nostalgic memories of his first love-affair? Further, if the passenger should dare to appeal to higher authority in the shape of an impressive inspector or top-hatted stationmaster, would they be in order in inquiring for whom the flowers are intended and, on extracting the desired information, exercise their absolute discretion by ruling that only deadly nightshade is permissible for mothers-in-law and love-lies-bleeding is the only appropriate flower for fiancées? Again, what is to happen to the train and its other passengers while this weighty judgment is being delivered?

On the other hand it may be agreed that "a railway company" can only exercise its powers under the Order in a corporate capacity. In that event, on seeing a passenger enter a compartment with a bunch of *Taraxacum officinale*\* for instance, it would presumably be necessary to summon a quorum of directors from the four corners of the system, resplendent with Secretary and Great Seal to determine the matter. The presence of the Great Seal would itself add a certain piquance to the proceedings as we feel sure that Commander Campbell of Brains Trust fame must at least have heard of a Lesser Seal which came out in coloured spots through eating a bunch of Cornish anemones in mistake for sea urchins. What a Great Seal might do when called upon to be present at an inquiry into the size of a bouquet of *rosa canina* or *ranunculus bulbosus* can only be left to the imagination! We may yet live to thank the Minister of War Transport for adding a little gaiety to our present wartime austerity.

\* Dandelion

## LETTERS TO THE EDITOR

*(The Editor is not responsible for the opinions of correspondents)*

## Locomotives for Spain

Locomotive Manufacturers' Association,  
82, Victoria Street,  
London, S.W.1  
Feb. 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The position as to the building of locomotives for the Spanish National Railways seems inevitably to cause confusion. The announcement in *The Times* of December 30 last that 40 locomotives had been delivered by the Babcock & Wilcox factory to the Spanish National Railways during 1942, was quoted by several newspapers without specifying that the engines were built in Spain. The circumstances were clearly and accurately recorded on page 52 of THE RAILWAY GAZETTE of January 8, but from many quarters—even Departments of H.M. Government—inquiries have come to me indicating that it is widely entertained that the engines were built in Britain. As you explained, they were, of course, built in Spain by the Sociedad Espanola de Construcciones Babcock & Wilcox, which has Spanish capital and is a Spanish undertaking. In this country Babcock & Wilcox are not locomotive manufacturers.

Having dealt with those inquiries it was not my intention to suggest that further space be occupied on this matter, but in an article published in the *Evening Standard* of February 24, written by the military correspondent of that newspaper, it was declared that: "If the Germans used the Spanish railways, however, they would find some British engines there. The last two of a first order for forty engines have been delivered by Messrs. Babcock & Wilcox to the Spanish National Railways. All forty were built this year and are the same model."

Leaving aside the fact that it would be physically impossible for any works to have built 40 locomotives this year—they were built during 1942—it is, to say the least, unfortunate that the impression should be created that British builders are supplying locomotives to Spain at a time when their full energies are directed to production in furtherance of the war effort. Apart from the misunderstanding likely to be brought about among the railway companies and other old customers of British locomotive manufacturers, in many countries, the political implications of statements of that kind might well be weighed by military correspondents, even if they could hardly be expected to know anything of the locomotive industry.

Yours faithfully,

J. W. VAUGHAN,  
Secretary

## Retardation Tests in Assam

Park Town, Madras, India,  
Nov. 5, 1942

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of August 14, 1942, in the article "Retardation Tests in Assam" it is stated that the experimental signalling of the former Assam-Bengal Railway is "A" class and has superseded "B" class without reducing appreciably the capacity of the line. This is incorrect and impossible, and it is evident that Mr. E. W. Baker's paper has been misunderstood in this respect. The fact is that he has used "A" class signals for "B" class traffic working. The difference between the two Indian classes is easily understood from the following comparison:—"A" class resembles ordinary British practice; "B" class is the same as British practice at junctions where an outer home is provided, but it permits of the distant signal being placed on the same post as the outer home.

Yours faithfully,

A. C. ROSE,  
Deputy General Manager,  
Madras & Southern Mahratta Railway

[We are much obliged to Mr. Rose for drawing attention to this point. When speaking of "A" class we were thinking of the change Mr. Baker had made whereby a driver does not, as in "B" class signalling, encounter a stop signal unannounced as the first signal in rear of a station, but meets a caution signal first, which is the case, of course, in "A" class working. We agree that in other respects the working is "B" class and that "A" class block rules do not apply. We were writing chiefly from the point of view of the signal aspects a driver meets when coming to a station. In referring to capacity we were thinking of the fact that in times of poor visibility a driver must under "B" class signals run in such a way that he will not be caught unawares by a stop indication without any caution indication in rear, whereas if the first signal he meets with is a distant signal

only he can travel with greater confidence and so keep better time. This is often advanced as the advantage of "A" class signal aspects, which can of course be used under block rules of a less rigid type, if desired. We have not yet seen all the discussion in the Indian press which has followed Mr. Baker's paper and prefer to do so before commenting further.—Ed. R.G.]

## Gradient Posts

Essex House, Essex Street,  
Strand, London, W.C.2  
Feb. 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The following statement as to gradient posts, and also as to a luxury provided by the company for passengers, appears in the *Railway Chronicle's* travelling chart of the line from London to Brighton, which is undated, but from internal evidence would appear to have been published in 1845:—

## "THE MILESTONES AND GRADIENTS"

are clearly marked, the former every quarter of a mile. The distance from London is marked on the east side, that from Brighton on the west side of the railway.

## A GLASS OF WATER

is always to be had at every station."

Yours faithfully,  
KENNETH BROWN

## War Advance Claim by Senior Railway Staff

Feb. 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Like many others, I am interested in your correspondence in regard to the railway clerical and supervisory staff who are in receipt of salaries of upwards of £500 a year, and I am grateful to you for the interest taken in the subject, and in permitting your columns being used to ventilate what is undoubtedly a legitimate grievance.

There is no comparison whatever between the higher grade of railway employee and the civil servant. Rather would I compare such with the Royal Engineers, and particularly the Railway Operating Division, when it would be found that the staff controlling large bodies of men on the railways, and issuing line instructions dealing with the fundamental job of everyone employed thereon, are very much under-paid, which can only be brought to light by a Government Inquiry into the working of the railways, which should be one of the first considerations after the war.

The present difficulty could be easily overcome, temporarily, by giving an advance to everyone over £500 a year, of from £50 to £100 a year, and with the exception of a favoured few, the staff is worth it.

Yours, etc.,  
SCRUTATOR

Feb. 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—After reading your editorials and the correspondence published relating to "War Advance Claim by Senior Railway Staff" it is obvious that a guild or association is required to be formed by the senior railway staff as a means of protection or of approach. All other professions or trades have their associations to look after the interests of the members, and why not senior railway staff who could hardly associate themselves with the present railway unions. Something of the kind will certainly be necessary in the post-war period when unification, amalgamation, or anything else that may come along, is brought about, especially after the present period of Government control.

The large departments built up in connection with the control of railways will not want to release their hold, to the further detriment of the senior railway staff.

Yours faithfully,  
D. C.

## A Question in Parliament

Notice has been given that in the House of Commons on the second sitting day after February 28 Sir Ernest Graham Little will ask the Parliamentary Secretary to the Ministry of War Transport if he is aware that there has been unfair discrimination, examples of which have been submitted to him, in the treatment of the senior staff of British railways as regards increase of remuneration to meet increased costs due to war conditions; and whether he would take steps to rectify this position.



## Publications Received

**L.M.S.R. Diesel-Electric Shunting Locomotives.** London: THE RAILWAY GAZETTE, 33, Tothill Street, S.W.1. 9 in. by 6 in. 24 pp. Price 2s. net.—Operating experience with shunting locomotives of different types in the U.S.A. has demonstrated so many important advantages arising from the use of diesel rather than steam units that the ordering of new steam shunting engines has almost ceased for the time being, although older steam locomotives are no doubt turned over to shunting duties. Conditions in this country are not identical with those in America, whence nearly all comparisons of operating costs have come hitherto, and a record of British experiences with diesel shunters has been awaited with interest for some time. A very heavy first cost is a substantial item on the debit side, but it can be shown that on balance the diesel seems to have a decided advantage. The views of different railway administrations vary considerably in this matter, however, and the large-scale trials undertaken by the L.M.S.R., and the good results so far obtained, of which full details are included in this brochure (a reprint of a series of articles from THE RAILWAY GAZETTE), should prove of outstanding interest.

**International Railway Associations.** London: THE RAILWAY GAZETTE, 33, Tothill Street, S.W.1. 8½ in. by 5½ in. 24 pp. Price 2s. net.—In Europe more than anywhere else the war has played havoc with international railway traffic, and it appears that it will be unavoidable after the war to reconsider the functioning of many of the pre-war international railway associations which have played such an important part over a long period of years in guiding or regulating traffic between railway administrations in different countries. To facilitate this, THE RAILWAY GAZETTE recently published a series of articles reviewing briefly the work and scope of the European railway associations in existence up to the outbreak of war. These articles are reprinted in more permanent form in the present brochure, which should prove of value to all concerned with the restoration of international traffic.

**Switchgear Practice.** By Arthur Arnold, A.M.I.Mech.E., A.M.I.E.E., Chapman & Hall Limited. London: 11, Henrietta Street, W.C.2. 9 in. × 5½ in. 238 pp. Illustrated. Price 22s. net.—The author of this book has been familiar with electrical switchgear, more particularly for industrial applications, over a period of many years, and there can be few writers more competent to deal with current practice insofar as it concerns the user rather than the designer or manufacturer. The characteristics and limitations of different types of switchgear are discussed in relation to the applications for which they are intended. Direct-current circuit-breakers and motor starters are discussed first, after which attention is paid to the corresponding equipment for alternating current applications of moderate power. Coming to larger powers, the author deals with a.c. busbar layout and further types of a.c. switchgear, including heavy duty circuit breakers with different methods of arc control. Isolation and bus-selection is next discussed, after which the author's knowledge of mechanical engineering has enabled him to give a very clear account of the different methods of circuit-breaker operation and interlocks. Switchgear testing, protective devices, instruments, and control boards are covered

in three further chapters, and consideration is given finally to lightning arresters, fire prevention, and oil-less circuit-breakers. At the end of the book is a list of the relevant British Standard Specifications and also a comprehensive bibliography of recent relevant articles, papers, and reports. Engineers responsible for workshop plant and substation equipment will greatly appreciate having all the salient facts about electrical switchgear gathered in a readable and well illustrated book of reasonable proportions. Notwithstanding wartime difficulties, the paper, printing, and reproductions, both line and half tone, are little short of pre-war standards.

**Mathieson's Handbook for Investors for 1943.** London: Fredc. C. Mathieson & Sons, 16, Copthall Avenue, E.C.2. 6½ in. × 3½ in. 332 pp. Paper covers. Price 5s. net.—The 1943 handbook, now in its 44th year of publication, provides a concise record of the dividends, and the highest and lowest Stock Exchange prices of the securities of a large number of companies, for the last ten years. The tables give at a glance a very useful indication of the trend of the price fluctuations of most stocks and shares. The dates of the making up of companies' accounts, and the dates of their issue are also shown. Particulars are given of the four British main-line railways, as well as for the Great Northern Railway (Ireland), and the L.P.T.B. Records of 10 Indian, 10 Colonial, and 30 of the more important foreign railways are included, and a comprehensive index and a table of contents make for easy reference. Information of value to the investor is provided, including a perpetual yield table; changes of Bank of England rates of discount from 1913 to 1940; information relating to investments by trustees, income tax, and new dividend taxes. Facts relating to 1942 are complete up to November, and information for 1943, such as Stock Exchange settling days and holidays, is also given.

**SJ Nytt (State Railways News)** Published monthly at Stockholm by the Swedish State Railways: Herr R. Lundqvist, Editor. 1st number, dated January, 1943.—Many railways, at home and abroad, issue their own house journals or magazines. During the last few years many requests have reached the Management of the Swedish State Railways for a similar publication, especially since the taking over of a number of privately-owned lines has considerably increased the mileage of the State system. These requests have been complied with at last, and under the title of "SJ Nytt (State Railways News)" and date of January, 1943, the first number of the new official journal has made its appearance. The editor, Herr R. Lundqvist, has an advisory committee of nine, chosen from widely different ranks of the service, to assist him.

The contents of the first issue are an assurance that the new publication will form a valuable addition to railway periodical literature and form a useful source of authoritative information on one of the most important railway systems of Europe, on which technical development has reached a high level of achievement in all departments. The history of the Swedish railways is full of interest and in due course, no doubt, will receive adequate treatment. The principal articles in this first number deal with the re-modelling of Ange yard and approach lines, trials of the latest express electric locomotives, general questions affecting the working, the doubling of certain routes, the ferry service to Copenhagen, the organisation of the management, and so forth. The illustrations

are well selected and reproduced. The title of the publication may prove to be provisional only, as a competition is advertised for suggestions for alternative ones. We welcome the appearance of *SJ Nytt* and wish the Editor and his staff every success.

**British Standard Electrical Glossary.**—A revision of the British Standards glossary of terms used in electrical engineering has now been prepared and is in the course of issue by the British Standards Institution in eight parts as follow:—

- Part 1. Section 1, General terms.
- Part 2. Section 2, Machines and transformers.
- Part 3. Section 3, Switchgear; and Section 4, Instruments.
- Part 4. Section 5, Transmission and distribution.
- Part 5. Section 6, Electrochemistry; and Section 7, Traction.
- Part 6. Section 8, Lighting and heating.
- Part 7. Section 9, Surge and lightning phenomena; and Section 10, Electric lifts, electric welding, X-rays and electromedical terms.
- Part 8. Alphabetical index to all the sections.

These parts will be published at 2s. each (as B.S. 205) and may be obtained from the Publications Department, B.S.I., 28, Victoria Street, London, S.W.1. Part 1 is now ready and the other parts are due to be issued at short intervals.

Terms relating to telecommunication, which were given in Sections 9 and 10 of the 1936 edition of the glossary, will be issued separately in due course as a revision of B.S. 204. We refer to this revised glossary in an editorial note, page 230.

**Simple War-Time First Aid.** 4th edition. By F. A. Trott. Horsham, Sussex: F. A. Trott, 16, Hurst Road. 4½ in. × 5½ in. 29 pp. Illustrated. Price 6d. net.—This booklet, now issued in the fourth edition, may best be described in the words of Mr. Edgar Uzzell, Welfare & A.R.P. Training Officer, Southern Railway, who says in the foreword: "If I had been asked to give a title, I should name it 'On the Spot First Aid.'" Within the compass of a comparatively few pages, the outstanding points of first-aid are not only clearly expressed in words, but also in simple illustrations. Mr. Trott is a County Officer of the St. John Ambulance Brigade, and is Ambulance, A.R.P., and Welfare Inspector of the Southern Railway. All profits by the sale of the booklet will go to war charities.

**Plain and Vertical Milling Machines.** Milwaukee Bulletin, No. 741, recently received from A. C. Wickman Limited, sole agents for the products of the Kearney & Trecker Corporation of Milwaukee, U.S.A., describes new plain and vertical milling machines. These machines give 16 speeds ranging from 12½ to 500 r.p.m., and 32 feed changes, a variation which is said to be wide enough to accommodate the needs of heavy milling work for which the machines are designed. The area of the table is 11½ sq. ft., and the feed ranges are 52 in. longitudinally, 16 in. crosswise and 20 in. vertically. A further 8 in. vertical feed is obtained from sliding-head travel with the vertical type of machine.

**"A.E.C. Gazette."**—The January issue of the *A.E.C. Gazette* completes 17 years of continuous publication, and the company has now decided to suspend publication for the remaining period of hostilities, taking this step in the interests of conserving paper supplies. The *A.E.C. Gazette* has maintained a consistently high standard of production, and its articles have proved both interesting and informative. We look forward to the resumption of publication after the war.

## The Scrap Heap

During the course of last year, 4,217 tons of waste paper were collected by the L.M.S.R.

In a request to Lord Leathers, Minister of War Transport, for a special inquiry into the number of fatal accidents involving trolleybuses, the committee of the Pedestrians' Association asserts that, according to the latest returns, the trolleybus in the London traffic area has the worst fatal accident record of all types of public service vehicles. This is in spite of the advantage of trolleybuses over trams in being able to draw up to the kerb for passengers, says the association.—From *"The Evening Standard."*

**NO MORE ORCHIDS FOR MISS BLANDISH**  
I can't take any orchids to Miss Blandish, For a fellow on the platform said to me,  
"I must draw the line at flowers  
After studying for hours  
This 'ere statute, section ninety, para. three."

There won't be any orchids for Miss Blandish  
And the reason, though regrettable, is clear.  
For the porter said, he did,  
"You might sell them for a quid,  
And I musn't be permitting that there 'ere."

So there won't be any orchids for Miss Blandish.  
The omission, since she likes them, gives me pain.  
I have poison in a bottle,  
I can smother, stab, or throttle,  
But I musn't carry flowers on the train.  
E. C.

### A MIDLAND MAZE

One of England's most curious stations, from the topographical point of view, is Trent Junction on the Midland Division of the L.M.S.R. The 10 a.m. express from Glasgow to St. Pancras arrives at and departs from the up side of its single island platform, travelling south, as might be expected; but the "opposite number" of the same train, at 10 a.m. from St. Pancras to Glasgow, also uses the up platform, and similarly arrives and leaves in the southbound direction. The 5.50 p.m. from Manchester to St. Pancras, having entered the station by the north curve, uses the up platform in

orthodox fashion; but not long before, it has been preceded in the same platform by the 1.30 p.m. from St. Pancras to Manchester, which leaves by the south curve. It is possible to travel through from Trent to St. Pancras either by an up train or by what, through Trent

## Destroyed 'Bus Tickets - FINED 5/- . . .

There have been several prosecutions recently for paper wasting. When we learn of our growing power and of the vital part WASTE PAPER is playing, we must realize that even a ticket counts.

**200,000  
'BUS TICKETS  
are used by the  
City of Plymouth  
Transport  
EVERY DAY**

- ONE 'BUS TICKET = three cartridge wads
- SIX 'BUS TICKETS = one shell washer

**What will your  
WASTE PAPER  
make?**

Station, is temporarily a down train, from either the up or down side of the island platform. Most curious of all the trains using Trent is the 1.30 p.m. from St. Pancras, which between Nottingham and Trent can simultaneously be carrying passengers from and to the same stations; it has stopped *en route* at Wellingborough and Kettering, and from Nottingham provides a connection at Trent to the 5.5 p.m. from Trent to Kettering and Wellingborough. The reason for these complexities is the diversion of certain Midland Division trains from their normal direct routes of peacetime to serve both Nottingham and Derby. For trains from St. Pancras to the north, this means travelling full south-west for 7 miles from Nottingham to Trent, due south through Trent Station, and west again for 9 miles until turning back to the north at Derby.

### SLOW GOING

"Do you think Orders in Council should be intelligible?" asked Alice.

"Certainly not," replied the Red Queen, promptly. "If they were intelligible they would be understood, and then what would happen to the British Constitution?"

"I don't know," admitted Alice. "But it seems rather odd to me. There they were in the Commons on January 19, 1943, praying for the annulment of an Order dated July 23, 1940—away back before the Battle of Britain began. Two and a half years to understand it and then they ask for it to be annulled (which they didn't get), and somebody says that there are between eighty and a hundred other Orders all awaiting acceptance and all equally difficult to understand. It doesn't seem to me fair."

"Fair to whom, child?" demanded the Red Queen, severely.

"Fair to anybody—least of all to those who are affected by the Orders which the M.P.'s can't understand."

"It is perfectly fair," said the Red Queen, coldly, "to the Departments who issued the Orders—and they are the only people who matter. Look what happens when an Order is understood—somebody tries to object to it. The only safe thing is to get it so tied up in jargon and clauses and sub-clauses and cross-references that no outsider can understand it at all—and then it goes quietly through by default and the Department gets what it wants."

"It seems to me," said Alice, "a legislative blackout."

"And why not, child? You mustn't think that because you are going to get a little more light in railway trains that you are entitled to understand an Order in Council."—From *"The Manchester Guardian."*

### TAILPIECE

Twenty girls are the first pupils at Watton House school for station clerks.

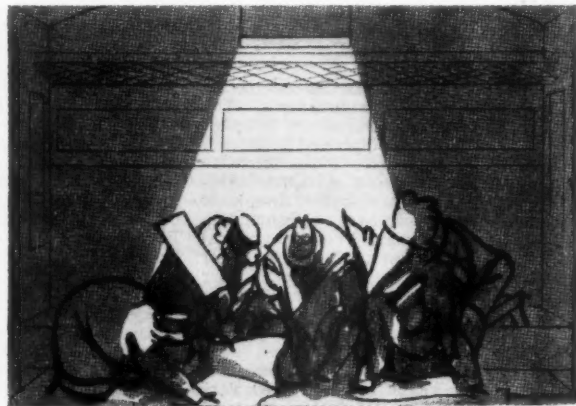
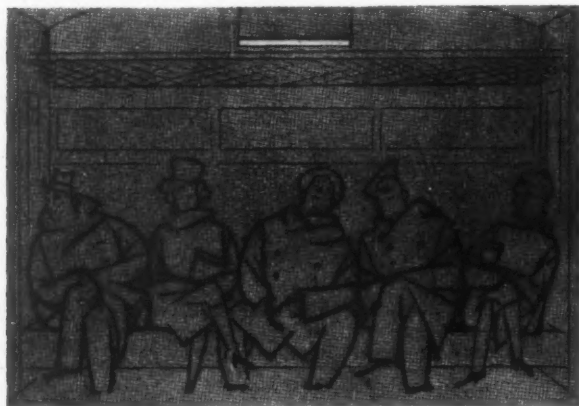
She came, she stayed, forsaking frills and frocks,

To trundle trunks or work a signal box,  
To handle this or that unlikely chore,  
And free for sterner traffic one man more.

The booking-office too is her preserve;  
She issues tickets with such grace, such verve,

That patriots murmur as they save a fare,  
"My journey, is it—? No, but would it were!"

E. C.



Certainly the extra train-lighting has made a very great difference to—our comfort

[Reproduced by permission of the proprietors of "Punch"]



# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## UNITED STATES

### Fire Losses in 1941

Damage to United States railway property by fire during 1941 was estimated to total \$7,457,760, the highest figure of any year since 1924, and more than double that of 1940. This increase was largely due to five fires which caused damage exceeding \$250,000 and to another ten which involved a loss of between \$50,000 and \$100,000 each. Smoking and matches were responsible for damage totalling \$1,110,790; and train wrecks caused fire losses of \$614,219. For no less than \$2,195,380 of the damage no precise reason could be assigned.

### Modernising Rock Island Stations

A great deal is being done in the United States towards the popularisation of railway travel by modernising stations. In North America all waiting for trains is done in the main station-building, and not on platforms, and increasing care is being taken with the decoration and furnishing of those parts of station interiors which are used by the general public. Recently the Chicago, Rock Island & Pacific Railway has completed a programme of improvement at five important stations—Bureau (junction for Peoria), Iowa City, and Des Moines, on the main line from Chicago to Omaha; Lincoln, 58 miles west of Iowa; and Little Rock, Arkansas, on the Oklahoma-Memphis line. The most interesting of these transformations is at Little Rock, where the general office-building, originally a three-storey plantation home, was an army headquarters during the Civil War, and later a hospital; care was exercised to improve this historic landmark without destroying its essential architectural features; and this was done successfully. A further improvement is the provision of a landscape garden round the building. The biggest undertaking was at Des Moines, an important junction with a main station-building 240 ft. long by 40 ft. wide. In this, the large waiting room (90 ft. by 36 ft.), with a high arched ceiling, has had the white tiles of its walls replaced by glass block panels, matched walnut veneer, and maple inlay; indirect fluorescent lighting has taken the place of the old suspended lights; instead of uninviting rows of wooden double-seats, modern leather-upholstered chairs and settees are provided; and the radiators have been removed from the centre of the hall to concealed positions. Many other details, such as a luncheonette counter, news stand, open ticket-office, and so on, have been added, all in attractive streamline finish, and the result does the railway great credit. The programme was begun in 1940, but completion was delayed by the war.

### New Locomotives on the Dixie Line

The Nashville, Chattanooga & St. Louis Railway, often known as the "Dixie Line," of which the principal main line extends for 526 miles from Atlanta, Georgia, to Memphis, Tennessee, has taken delivery recently from the American Locomotive Company of ten new 4-8-4 locomotives. These engines are a modernised version of a previous 4-8-4 series introduced in 1930, and are intended for working the Dixie Limited, Dixie Flyer, the streamlined Dixie Flagler, and other expresses, particularly over the difficult 152-mile section through the Cumberland Mountains between Nashville and Chattanooga. The new engines have cylinders 25 in. by 30 in.,

driving wheels 5 ft. 10 in., boiler pressure 250 lb. per sq. in., and tractive effort 57,000 lb.; they weigh, without tender, 178 tons. Twelve-wheel tenders are provided, instead of the eight-wheel tenders of the previous series, and the attractive semi-streamline exterior is enhanced by a broad band of colour extending from the cow-catcher along the full length of engine and tender. The fastest schedule on the N.C. & St. L.R. is that of the Dixie Flagler from Nashville to Tullahoma, 70.5 miles in 75 min.

## ARGENTINA

### Institution of Civil Engineers' Meeting

The fourteenth annual meeting of the Buenos Aires Association of the Institution of Civil Engineers was held on December 10 last, when the Acting Chairman, Mr. G. H. Austin, presided. The annual report showed that during the session four meetings had been held at which papers had been read, or addresses given, by Messrs. F. W. Butler, H. H. Grindley, D. G. Butlin, and Colonel R. E. M. Russell. Visits had been paid to places of professional interest, and the association was represented at the Third Argentine Engineering Congress, held at Córdoba in July. The number of members on the roll of the association was 107, the same as in 1941. Of these, 21 were on war service. The committee recorded with regret the death in a flying accident on active service of a student member, Mr. D. B. Bruce. The Senior Follett Holt Premium for the 1941 session had been awarded to Mr. J. Cross for his paper on "The Construction of the San Felipe Dam." Examinations of the institution had been held in Buenos Aires in October, at which Messrs. F. L. Creswell and J. H. Taylor had acted as examiners. Mr. D. G. MacCormack, Chief Engineer, Central Uruguay Railway, was elected Chairman for 1943; Messrs. H. W. Stevens, L. Reynolds, G. H. Austin, and E. Pilditch were elected Vice-Chairmen; Mr. F. Rapley was re-elected Honorary Secretary; and Mr. E. Pilditch was elected Honorary Treasurer.

### Railway Wages

As recorded in THE RAILWAY GAZETTE of December 18 & 25, 1942, the Railwaymen's Union has petitioned the companies for an increase in salaries and wages on the following scales: on earnings up to 160 pesos monthly, 20 per cent.; between 161 and 250 pesos, 15 per cent., and on earnings over 251 pesos a month, 10 per cent. The reason invoked was the increased cost-of-living. It was stated that, whereas commercial employees had been granted increased remuneration to enable them to meet this higher cost, the salaries and wages of the railwaymen had remained practically at the same level since 1925, when they were considered reasonable in view of the economic conditions then ruling; and that since that year, according to statistics of the National Labour Department, the cost-of-living had risen by over 76 per cent. The union's note referred to the improved traffic returns, and to the higher tariffs granted to the companies by the Government in March, 1942, in justification of its demand. The note has been replied to by the Board of Railway Managers, in a memorandum in which it points out that, since the beginning of 1940, it has been negotiating with the Government for authority to adopt

certain measures which would tend to place the railways on a sounder financial footing, and solve some at least of their many problems. The board states that so serious was the situation of the railways that, in July last, and again in September, they had been forced to petition for certain emergency measures.

### Award Suspended

On the other hand, the unions had succeeded in getting the Government to suspend the Presidential Award relating to the wage retentions put into force to enable the companies to tide over their difficulties. Even the unions evidently realised that this concession to the employees' demands would have been impossible unless the companies had been granted some compensation in the shape of a small increase in the tariffs, for which authorisation had been given for one year, to expire next April. Without waiting for the expiration of this period, the unions have demanded an increase in pay which, if conceded, would add another 30,000,000 pesos (£1,800,000) to the railways' wage-bill. The memorandum further states that, according to the figures available, working expenses, apart from exchange losses, have risen since 1940 by nearly 39,000,000 pesos (£2,340,000), but that gross revenue has increased only by 23,800,000 pesos (£1,428,000); and that, under the Presidential Award, the railwaymen are assured a degree of security of employment which is not enjoyed by the majority of commercial employees, as its provisions expressly forbade any dismissals or reductions of staff for reasons of economy. Furthermore, due to the progressive system of promotion provided for by the Award, the wage retentions were more apparent than real. After quoting figures which show that the scale of salaries and wages on the railways is, in general, higher than in other industries, the memorandum goes on to show that the actual purchasing power of the railwaymen's wages was 30 per cent. more in 1941 than in 1925, and in the intervening period there has been a further increase of 23 per cent. In conclusion, it is stated that, in the majority of cases, receipts are insufficient to cover ordinary working expenses, and that all the companies, due to their difficult financial situation, are considerably in arrears in the payments on their debentures. The situation is being studied at present by the National Railway Board, by order of the Government, with a view to finding some means of reducing expenses and increasing revenue; until this is achieved, it is impossible for the companies to accede to the petition of the union for higher wages.

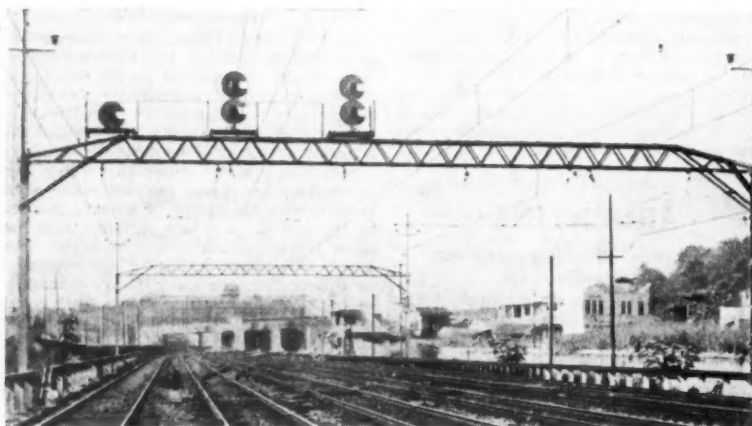
## SPAIN

### Reorganisation of Government Railway Department

The establishment of the Spanish National Railways and the powers of its board of directors has resulted in less of the tasks previously allotted to the General Management of Railways, Tramways & Road Traffic of the Ministry of Public Works requiring to be performed by that department; and an Order issued by the ministry in June, 1942, has provided for the unification of the two departments dealing with control of traffic and survey, respectively, as well as of that dealing with general traffic problems, into one department. The latter is subdivided into three sections concerned respectively with the operation of the Spanish National Railways; the operation of private narrow-gauge railways; and tickets and passes.

## Electric Traction on Central Railway of Brazil

*The suburban services round Rio de Janeiro have to carry a very heavy traffic leading formerly to excessive overcrowding. Electric traction is now in use with most satisfactory results*



Colour-light multiple aspect signals on overhead structure

THE Central Railway of Brazil, a State-owned line, has 1,200 route miles of metre gauge and over 800 route miles on the 5 ft. 3 in. gauge. From Rio de Janeiro there is a main line running south-west to Sao Paulo, a large industrial centre, and another running north-east to Bello Horizonte. These routes separate at Barra do Pirahy, about 50 miles from Rio de Janeiro. The suburban traffic is very heavy and had increased from 12 million passengers in 1900 to 63 million in 1934, or by 425 per cent., although the coaching stock was increased only 72 per cent. in the same period. Overcrowding became very bad. The cost of transporting fuel, almost all of which had to be imported, was very high and the working generally was uneconomical.

### Proposals for Electrification

The possibility of electrifying the Rio suburban routes was first discussed some 35 years ago and in 1907 the then General Manager represented it as an urgent matter. It was continually under discussion thereafter and in 1921 tenders were issued, but without result. Another 10 years passed before the question was finally decided and the scheme sanctioned which is now in successful operation. The advantages of electric working have been so pronounced that there is every possibility of its extension being undertaken. There is practically unlimited water power within reasonable distance of the railway.

The main contract was signed with the Metropolitan-Vickers Electrical Co. Ltd. in March, 1935, and other leading British manufacturers assisted as sub-contractors for certain important essentials of the equipment. On behalf of the railway Dr. Benjamin do Monte acted as chief of a special electrification department. Electric working was inaugurated by President Vargas on July 10, 1937, and was soon in operation for the whole of the area concerned, which is shown on the accompanying map. From the Rio terminus, known as Dom Pedro II, there are four tracks, giving fast and slow roads,

as far as Deodoro, with two more between S. Diogo and Engenho de Dentro. At Deodoro there is a branch line leading to Mangaritiba, electrified as far as Bangu. On the main line electric working extends to Nova Iguaçu. All these lines are broad gauge.

### D.C. System Adopted

The 3,000 volt d.c. system was adopted; this was standardised by the

government for the whole of Brazil. The authorities had considered building their own hydro-electric power station at Salto, about half way between Rio and Sao Paulo, and distributing power at 132,000 volts over a wide area, but to avoid running lines carrying this voltage to substations in populated districts it was decided to build a central outdoor extra-high-tension sub-station at Deodoro, transmitting from that point to the other substations at 44,000 volts over lines carried on the overhead contact-wire structures. This sub-station has not yet been erected and power is at present obtained at 25,000 volts, 3 phase, 50 cycles, from the Rio de Janeiro Light & Power Company's outdoor sub-station at Cascadura; the supply is taken from there over the railway's transmission

lines intended eventually to work at 44,000 volts.

At Deodoro there is an ordinary traction sub-station and the extra-high-tension one yet to be built, will be combined with it. The sub-station equipment has been constructed to enable it to work on the higher voltage of 44,000 in due course. The second sub-station is at Mangueira and both comprise three 2,500 kW steel-tank mercury-arc rectifiers complete with transformer, which receive the incoming supply and deliver 3,000 volts d.c. to the contact wires. There are track-sectioning cabins at Dom Pedro terminus, Engenho de Dentro, Madureira, Bangu, and Nova Iguaçu. Each rectifier is completely self-contained, with its own vacuum pumps, and operates as an independent unit, and is of the 12 anode type, 6 phase, with two anodes in parallel per secondary phase of the transformer. The performance figures gave overload capacity varying from 25 per cent. for two hours up to 200 per cent. momentarily, with an overall efficiency of 96 per cent. at quarter load and nearly 97 per cent. at full load. Smoothing circuits reduce the residual ripple in the d.c. voltage to a value low enough to give freedom from interference with normal well-balanced telephone circuits. Comprehensive protective devices are installed and should a major fault develop these will shut down and lock out the rectifier concerned, until the apparatus is visited. The d.c. switch-gear is housed in concrete structures and comprises the most modern controlling and protective devices. Low voltage d.c. supplies are obtained from motor generators, with trickle-charged accumulator standby, serving also for peak load actuating solenoid demands. The track sectioning cabin equipments, including the 3,000 volt high-speed traction circuit-breakers, are generally similar to those



Map of suburban routes round Rio de Janeiro operated by the Central Railway of Brazil



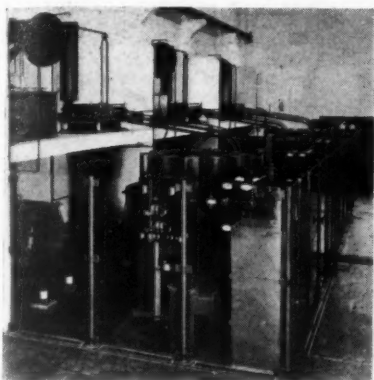
in the sub-stations, with the usual facilities for auxiliary power and d.c. low-voltage feed. The whole is arranged for remote supervisory control from Deodoro, where the supervisor has a repeater diagram, showing the conditions obtaining at each location, and can actuate the various switches, rectifiers, and so forth, as occasion demands. The pilot control wires are carried in timber trunking along the line, together with certain signalling

lines are carried on each side of the track on the tops of the side masts and the 4,400 volt signal a.c. supply on brackets on the sides.

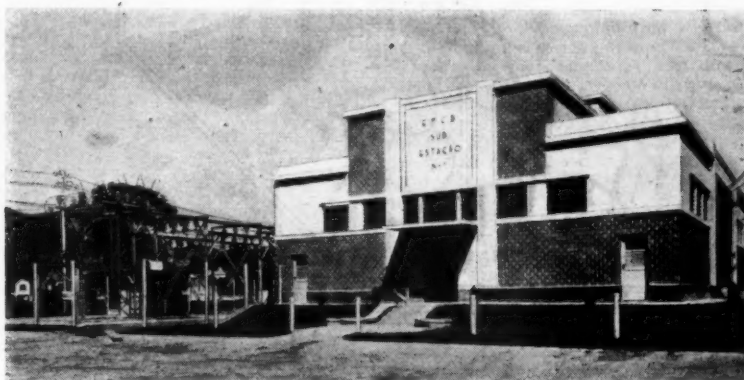
The wide track gauge and clearances have allowed very pleasing rolling stock to be adopted. Trains are formed of units of three all-steel coaches with motor coach in centre and driving trailer at each end. The motor coach, however, has a driving cab for use in special cir-

40 trains an hour can be run, accommodating 51,200 passengers, with a 3 min. service on the four tracks. This figure could be raised to 76,800 by adding another unit, making three, to each train. The maximum speed is 50 m.p.h.

Three-aspect automatic and semi-automatic colour light searchlight-type signals have been installed, to afford the maximum facilities for rapid working, controlled by a.c. track circuiting and fitted



*Water-cooled rectifiers at Mangueira*



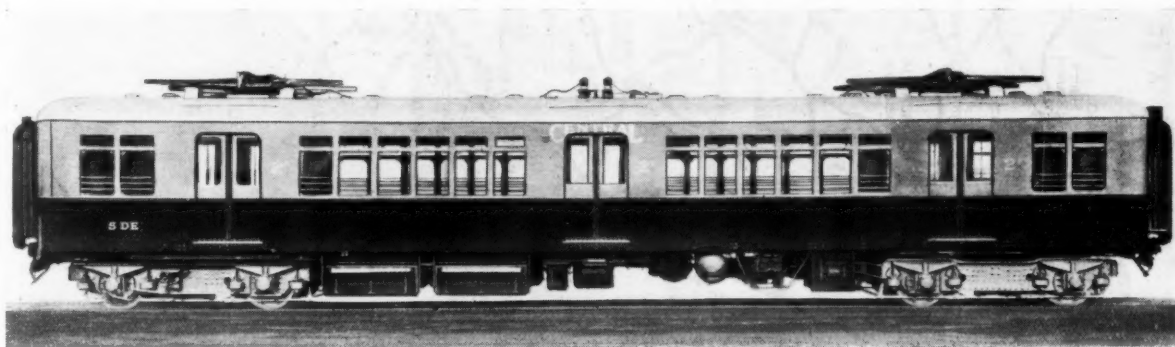
*The Mangueira outdoor and indoor substation*

circuits. Telephone communication is made over the former.

The overhead contact wire is 0.194 sq. in. hard-drawn copper suspended from a 19-strand copper catenary cable by flexible droppers (steel catenary cable is used on sidings). The total copper section is such that feeders are unnecessary. The normal spacing of the structures is 213 ft., suitably reduced where required.

circumstances. Three double air-worked doors are provided in each side of a coach; one trailer of each unit is first class and upholstered, the other coaches second class and provided with wooden seats. All bogies are built-up and have roller bearings. Each motor-coach bogie has two 1,500 volt four-pole inter-pole motors with single spur 18/71 gear, giving 175 h.p. at 1,350 volts and 106 amperes, on

with train stops. The 4,400 volt a.c. signal supply comes from the sub-stations and is transformed or rectified as needed for the local feeds. The controls are normal clear with full block section overlap. At five stations electric power frames are used; the largest, 184 levers, is at Rio terminus. At other places mechanical lever frames are used, with lever locks and circuit controllers. Point



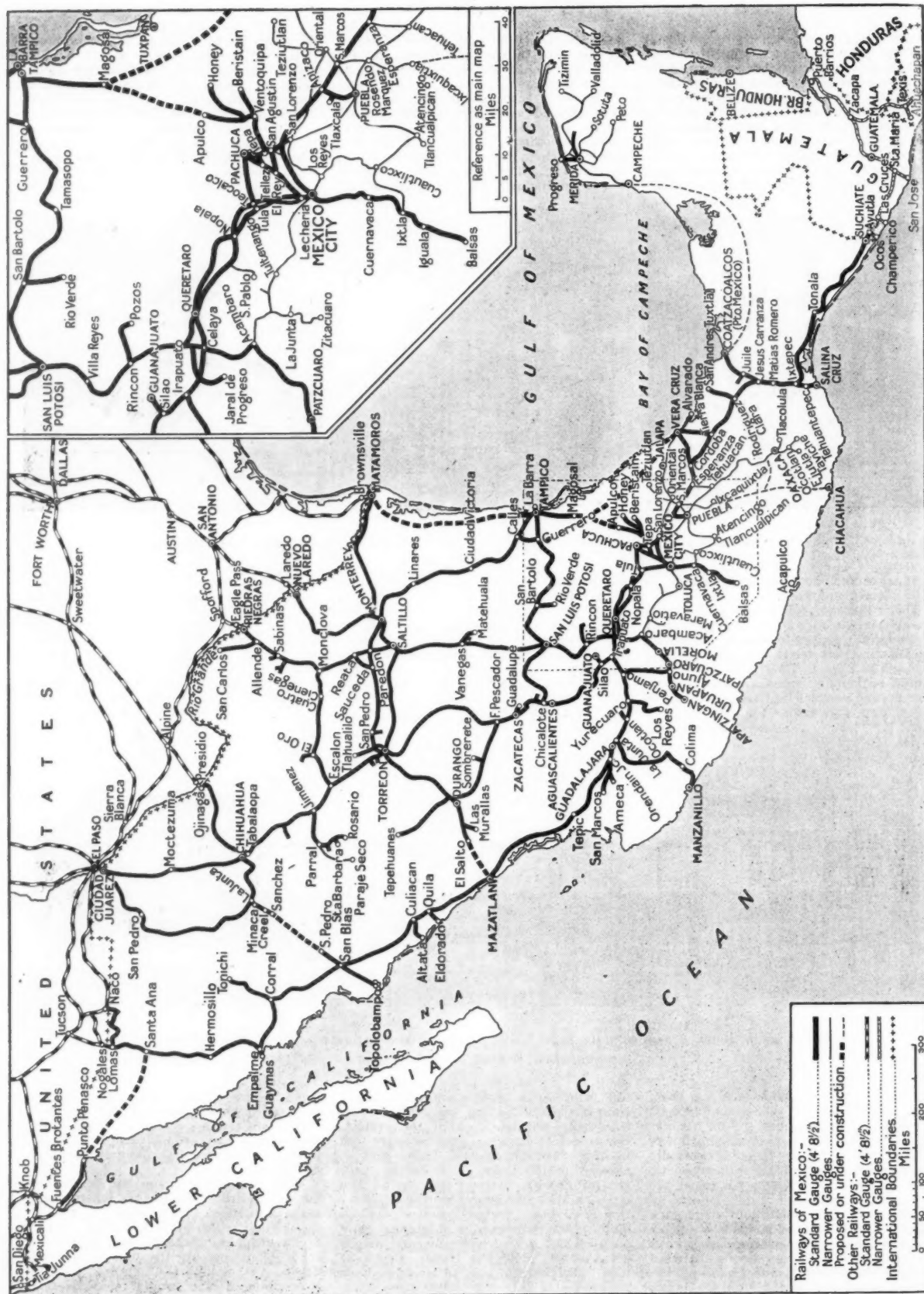
*All-steel motor coach equipped with four 175 h.p., 1,500 volt, motors. The coach is fitted with second-class seating accommodation*

The majority is of simple flanged beam type, but lattice, cantilever, and special structures at sub-stations, or for anchoring, are also used where circumstances demand. Abnormally large temperature changes are not met with and automatic tensioning is not required. All tracks are electrically separated but normally paralleled at the sub-stations and track cabins. Track rails are bonded by double arc-welded bonds; the overhead structures are connected to cross bonds between common rails through the signalling impedance bonds, at every alternate bond. The 44,000 volt three-phase transmission

full field. The motors are permanently connected in series and the control is on the electro-pneumatic contactor system; the control circuits, together with the lighting, ventilating and brake pumps, are fed at 100 volts d.c. from a motor generator, with battery standby. The series-parallel changeover during acceleration is on the "bridge" method. Each motor-coach has two pantographs, only one of which is used normally, and weighs unloaded 56 tons; the trailers weigh 34 tons. Under steam only 15 trains an hour were possible carrying 16,000 passengers, whereas now between Rio and Deodoro

machines are electric. Many of the signals are carried above the contact-wire structures. Certain ground signals are mechanically worked. Complete track, point, and approach locking is provided on the railway.

With trifling exceptions the equipment for the entire electrification scheme was manufactured in Great Britain. It is of the highest class of construction and is noteworthy in including multiple unit stock operating on the d.c. system at 3,000 volts, double the figure adopted in most other cases of similar electrification work.



The railways of Mexico, showing gauges and international connections



## The Railways of Mexico

*A system of great strategic importance which is rapidly being nationalised*

**E**ARLY railway development in Mexico coincided with the rapid extension southward of the railways in the neighbouring U.S.A. Concessions were offered by the Mexican Government with subsidies to attract foreign capital and during the prosperous era enjoyed by the Republic under the peaceful rule of President Diaz, main trunk lines were built towards the frontier, connecting with those of the U.S.A. to form through routes on the standard gauge. The system of subsidies had the effect of encouraging the construction of railways with a promise of remunerative traffic, leaving communications with poorer regions and mining districts to be provided by private enterprise. At the same time the State gradually acquired an ever-increasing interest in the main lines, and in 1941 more than 70 per cent. of the total mileage was State-owned.

The National Railways system, as such, first assumed a concrete form under the Decree signed by President Diaz on July 6, 1907, which authorised the merger of the National Railroad of Mexico and the Mexican Central Railway, with certain conditions, one of which was that the Mexican Government should hold a majority of the stock. Other subsequent mergers and the acquisition from time to time by the Government of control in other lines made the State system in 1941 a network of 9,623 route-miles.

The earliest section of line in the State system was that from Mexico City to Toluca, opened on September 4, 1882. The Mexican International Railroad, built in 1884-88, to provide through service between Mexico and New Orleans via Eagle Pass, was acquired in June, 1910; it had been controlled since 1901. The Interoceanic, Mexican Southern, and Mexican Oriental railways were later added, and even excluding reported acquisitions of the past few weeks, the National system extends from Mexico City to the United States border at Ciudad Juarez, Eagle Pass, and Laredo, to Vera Cruz on the coast, and to the Guatemala frontier in the south. Meanwhile, a network of independent railways has been constructed by private enterprise, the principal of which is the Mexican Railway, a British-owned line opened in 1873 and operating between Mexico City and Vera Cruz, 431 miles, and the Southern Pacific Railroad of Mexico, a subsidiary of the Southern Pacific Company of the U.S.A., operating since 1927 the 1,331 miles of standard gauge between the U.S.A. frontier and Guadalajara. There are two railways owned by provincial authorities, the Yucatan Railways, with 899 km. and the Vera Cruz, with 35 km. The following table shows how the total railway mileage, including 132 miles not actually working, and 339 miles under construction, was distributed at the beginning of 1942:—

	Route km.	Route miles	Per-centage
National system (with Interoceanic) ...	15,486	9,623	64.24
Other State-owned lines ...	1,907	1,185	7.91
<b>Total State-owned ...</b>	<b>17,393</b>	<b>10,808</b>	<b>72.15</b>
Provincially-owned lines ...	934	580	3.87
Privately-owned lines ...	5,783	3,593	23.98
<b>Total, all railways ...</b>	<b>24,110</b>	<b>14,981</b>	<b>100.00</b>

As regards gauge, the greater part (11,767 miles, or 81 per cent.) of the working lines is on the standard or 4 ft. 8½ in. gauge, and the remainder, 2,618 miles, on the 3 ft. gauge. On junction and connecting lines a third rail is used, and there are 124 miles of these transition lines. The only electrification is on the Mexican Railway, which operates 74 miles of electrified lines.

Among the "other State-owned lines," the most important is the Kansas City, Mexico & Orient Railway, operating 332 miles of standard gauge. This line, originally intended to provide direct communication between Kansas and the Pacific coast, 1,659 miles, was begun in 1900, but financial reverses delayed its completion, and, after successive receiverships, it came under the control of the Atchison, Topeka & Santa Fe Railway until 1940, when the Mexican section was taken over by the Government.

All the Mexican railways suffered more or less seriously during the revolutionary period, and that period left an impress on the physical and financial state of the enterprises which is still only too evident. Political change is still a factor to be reckoned with, and a recent development has been the definite expropriation of all the lines forming the State National system and the constitution of a "Workers' Administration" to operate them. By a Decree dated June 23, 1937, President Cárdenas ordered the expropriation of all the railways in the National system, and by a later Decree of April 23, 1938, their operation was confided to a council of administration of eight members, three of whom are nominated by the Railwaymen's Syndicate. Under this Decree working expenses are limited to 85 per cent. of gross

earnings, at least 5.36 per cent. is to be spent on extensions and improvements, and a regular contribution of 5.64 per cent. is to be made to the State (or 3.64 per cent. when gross revenue falls below \$125,000,000 a year). Any revenue remaining after all obligations have been met is divided into four equal parts, for extensions and improvements, increasing the percentage of the quota for the State, providing pensions for workers, and creating a reserve fund.

This interesting experiment did not prove a success. On the one hand the workers have claimed that the system was handed to them in a state of obsolescence and insolvency and that without some increase in tariffs it was not possible to meet the obligations laid down in the Decree, besides paying off arrears of instalments for rolling stock. On the other hand, public opinion criticised the frequency of accidents and other evidences of indiscipline and faulty management. All this led to the promulgation, on January 1, 1941, of a new law, under which the Government is empowered, among other things, to appoint the General Manager of the National Railways System. The Railwaymen's Syndicate, however, retains the right to nominate three of the eight members of the council of administration. These developments coincided with a record year for operating revenue. The following figures for the first eight months of 1940, compared with the equivalent period of 1939, show the increase:—

	Revenue for first eight months of	1939	1940
Passenger earnings ...	\$	19,144,506	20,641,110
Freight earnings ...	\$	72,790,061	76,387,861
Express earnings ...	\$	8,668,798	9,044,484
Miscellaneous earnings ...	\$	3,465,977	3,144,513
Total operating revenue ...	\$	104,069,344	109,217,969
Operating expenses ...	\$	85,187,621	92,787,218
Net earnings ...	\$	18,881,722	16,430,750
Operating ratio, per cent. ...		81.86	84.96

It is seen that, though operating revenue increased by \$5,148,625, or 4.95 (Continued on page 251)

Railway	Owned by	1-435 4 ft. 8½ in. km.	0-914 3 ft. km.	3 rail km.	Not worked km.	In con- struction km.	Total km.
Mexican National Railways ...	State	12,894	514	165	77	—	13,650
Mexican Railway ...	Company	639	262	—	—	—	901
Interoceanic Railway ...	State	1,816	—	—	20	—	1,836
Southern Pacific of Mexico ...	Company	2,404	—	—	—	—	2,404
Yucatan United Railways ...	Province	107	779	13	—	—	899
Inter-Californian Railway ...	Company	116	—	—	—	—	116
North Western of Mexico ...	"	884	—	—	27	—	911
Coahuila-Zacatecas ...	"	—	190	—	—	—	190
Nacozari Railway ...	"	135	—	—	—	—	135
San Rafael-Atlixco ...	"	—	161	4	—	—	165
Kansas City Mexico & Orient ...	State	539	—	—	12	—	551
Tijuana-Ticlate Railway ...	Company	81	—	—	—	—	81
El Oro Mining Railway ...	"	—	19	—	—	—	19
El Humo-El Higo Railway ...	"	54	—	—	14	—	68
Parral-Durango Railway ...	"	—	104	16	—	—	120
Desague del Valle de Mexico ...	State	—	118	2	—	—	120
Mexican Northern ...	Company	137	—	—	—	—	137
Chihuahua Mining Railway ...	"	—	25	—	—	—	25
Toluca-Tenango-San Juan ...	"	—	52	—	—	—	52
Jalapa-Teocelo Railway ...	Province	—	35	—	—	—	35
Puebla Industrial Railway ...	State	37	—	—	3	—	33
Rio Mayo Railway ...	Company	71	—	—	—	—	71
Minatitlan-El Carmen Railway ...	"	11	—	—	1	—	12
Potosi-Rio Verde Railway ...	"	—	64	—	—	—	64
Oaxaca-Ejutla Railway ...	"	—	—	—	34	—	34
Mexican Western Railway ...	"	66	—	—	—	—	66
Chalchicomula Railway ...	"	12	—	—	—	—	12
Toluca-Zitacuero Railway ...	"	—	18	—	5	—	23
Mexican Pacific Railway ...	"	47	—	—	—	—	47
Inter-Californian Southern ...	"	78	—	—	—	—	78
Camargo Western Railway ...	"	32	—	—	2	—	34
Quintana Roo Forestal ...	State	—	57	—	—	—	57
Ixcapa Industrial Railway ...	Company	—	—	—	18	—	18
Caltzontzin-Apatzingan ...	State	90	—	—	—	36	126
Puerto Mexico-Campeche ...	"	270	—	—	—	510	780
Fuentes Brotantes-Punto Peñasco ...	"	240	—	—	—	—	240
	km.	18,937	4,214	200	213	546	24,110
	miles	11,767	2,618½	124	132½	339	14,981

### NOTES

Of the Mexican Railway broad-gauge system, 119 km. are electrified. The National Railways system comprises, the National, the Central Tehuantepec, Vera Cruz-Alvarado, Juile-San Juan Evangelista, and Pan American Railways. The Mexican Railway includes the trunk line Mexico to Vera Cruz, and branches to Pachuca, Puebla, Huajuapán, Zacatlán, Huatusco, and Tlaxcala. The Interoceanic includes the Interoceanic, the Southern, and the Mexican Oriental.

## Soil Mechanics and the Civil Engineer

*Some notes on investigations conducted by Mr. George Ellson, Chief Engineer, Southern Railway*

*By A. H. Toms, B.Sc., A.M.Inst.C.E.*

IN a paper entitled "The Modern Trend of Railway Engineering Practice" which Mr. G. Ellson, Chief Engineer, Southern Railway, presented to the Institution of Civil Engineers on January 19, he referred to the new science of soil mechanics and its application to the solution of engineering problems. In view of the interest which is being shown at present in the development of this science, the following notes have been compiled with the permission of Mr. Ellson under whom the author has acted as Assistant in these matters.

From the outset in planning the execution of any civil engineering project, such as a railway, the engineer is faced with

the best of the author's knowledge there is still in most of these problems an enormous field for further research, but the pioneering work of Dr. Terzaghi and his followers has produced invaluable information as to the permissible pressures on foundations in cohesive soils.

A large amount of work has been done by various investigators on the subject of the stability of banks and cuttings, and theories have been evolved to enable stability calculations to be made on the assumption that in the case of clays the material is homogeneous. These theories and their practical application have been described recently in papers presented to the Institution of Civil Engineers, but, as

shear strength required to maintain equilibrium was only 4.6 lb. per sq. in. The shear strength of other specimens cut out of the slip surface ranged from 1.9 lb. per sq. in. to 12.9 lb. per sq. in.

It will be seen therefore that the measured shear strength of the unfissured parts of the clay was many times as much as was required to maintain stability, and that the whole clay mass was undermined by the softening and disintegrating action of the water which had percolated into the fissures. It is also possible that after periods of heavy rain or thawing snow, hydrostatic pressures exist tending to assist the movement in such slips.

From the diagram it will be seen how the slip was finally drained by means of hardcore filled trenches, suitably benched in concrete laid to falls and bedded in firm undisturbed clay at an adequate depth below the slip surface. After consultation with Dr. Terzaghi, who was in this country at the time, it was decided to reform the cutting to the shape shown in order to minimise the forces tending to cause further movement.

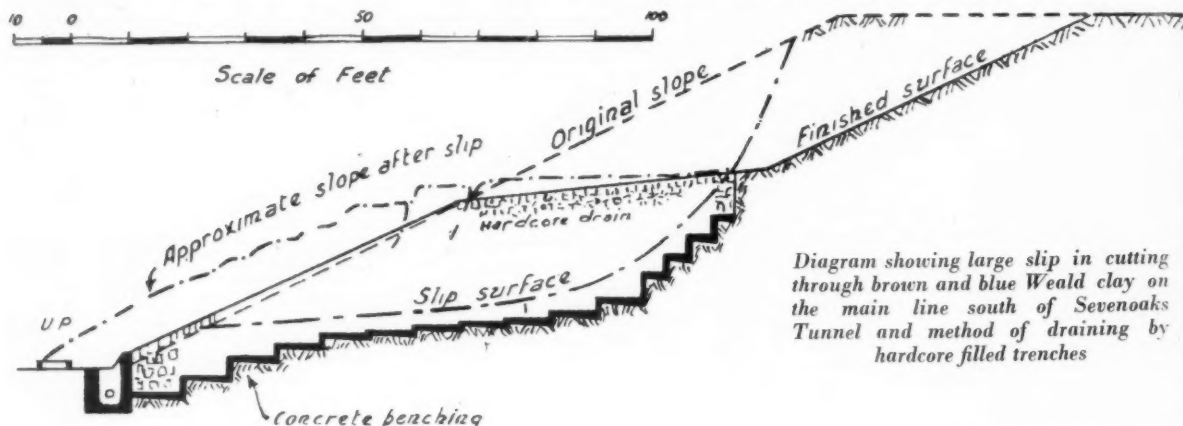


Diagram showing large slip in cutting through brown and blue Weald clay on the main line south of Sevenoaks Tunnel and method of draining by hardcore filled trenches

problems in which a knowledge of geology and soil mechanics can be of the greatest value in arriving at an economic solution. For instance, the alignment and gradients of the line may be determined to a very considerable extent by the nature of the strata into which excavation may have to be made for cuttings or tunnels, or which may have to be considered for the formation of banks. The side slopes and economic forms of banks and cuttings can be determined only with an adequate knowledge of the behaviour of the various types of strata encountered, and in this connection properly conducted soil tests in conjunction with a systematic investigation of previous experience with similar strata can be of very great value. Many slips, troublesome to the engineer and particularly detrimental to traffic working, could probably have been avoided by a greater appreciation of these factors.

The most satisfactory methods to be adopted in the stabilisation of troublesome banks and cuttings can be decided only after a proper examination of the site by means of borings or trial holes and the testing of the samples so obtained. Should bridges, tunnels or other structures be involved, the engineer will need to know at once what earth pressures will be exerted on the structures and also what bearing pressures can be adopted without risk of either (a) complete shear failure or (b) excessive settlement or other movement due to subsequent consolidation of any compressible strata. To

mentioned by Mr. Ellson in his paper referred to previously, clays such as the Gault, the Weald clay, and the London clay are not homogeneous. As found normally, these clays contain fissures which may or may not be related to the bedding, and in the Weald clay in particular the physical characteristics vary very markedly with depth.

The theories as to slides in homogeneous cohesive materials show that failure should take place by shearing of the material on a surface which is part of a circular cylinder and that the motion is one of pure rotation about the axis of the cylinder. That this is not the case in stiff fissured clays will be seen by reference to the accompanying line drawing, which shows the central cross section of the very large slip which occurred in April, 1939, in the cutting through brown and blue Weald clay on the main line south of Sevenoaks Tunnel. It will be seen that the slip surface, as revealed during the course of the subsequent excavation of the drainage trenches, departs very considerably from the true circular arc associated with homogeneous clays. This is due to the marked increase in stiffness of the clay with depth below the original ground surface, and to the very large number of fissures which exist in it, and which in the lower beds appeared to be predominantly parallel to the bedding.

The measured shear strength of the unfissured parts of the clay was of the order of 26 lb. per sq. in. and the calculated

The photograph shows the drainage and reforming work completed; most of the surface had been covered with a mixture of clay and ashes, and soiled and sown to minimise the variations of surface moisture content which cause cracking. One corner of this latter work was incomplete at the time of taking the photograph.

From the above remarks as to the importance of fissuration it will be apparent that the weak zones of any slope in such strata would not be detected from tests on samples of the clay taken from borings unless the greatest of care were taken to examine the whole of the clay removed by the boring tools. In an investigation, similar to, but far more extensive than, that at Sevenoaks, which was carried out immediately afterwards in collaboration with Dr. Terzaghi into the nature of the movements of a certain large and complex stretch of unstable coastal zone, it was therefore decided that undisturbed samples of the clay and other strata involved should be obtained at frequent intervals during the sinking of the various boreholes, and that the borings should be de-watered as far as was reasonably practicable to permit the removal of all strata with the least possible alteration to the moisture content or disturbance of structure. In addition to the tools which were made specially for this work by the contractors, Messrs. Le Grand Sutcliffe & Gell, for obtaining undisturbed samples, a tool with a cutting edge similar to a "shell" but without a

"clack," and having a special internal retaining ring, was found of great service in this work, and was successful in bringing up quite large undisturbed pieces of clay. It was thereby made possible to keep a practically true and continuous record of the full depth of the strata passed through. The ideal, of course, is continuous undisturbed sampling.

A large amount of extremely interesting and valuable data in regard to the mechanism of the disturbances was obtained from these borings and the tests which were carried out subsequently on both the disturbed and undisturbed samples taken from them. Unfortunately, however, due to the development of hostilities it was not found possible to continue the investigations, but it is felt that the work which was completed con-

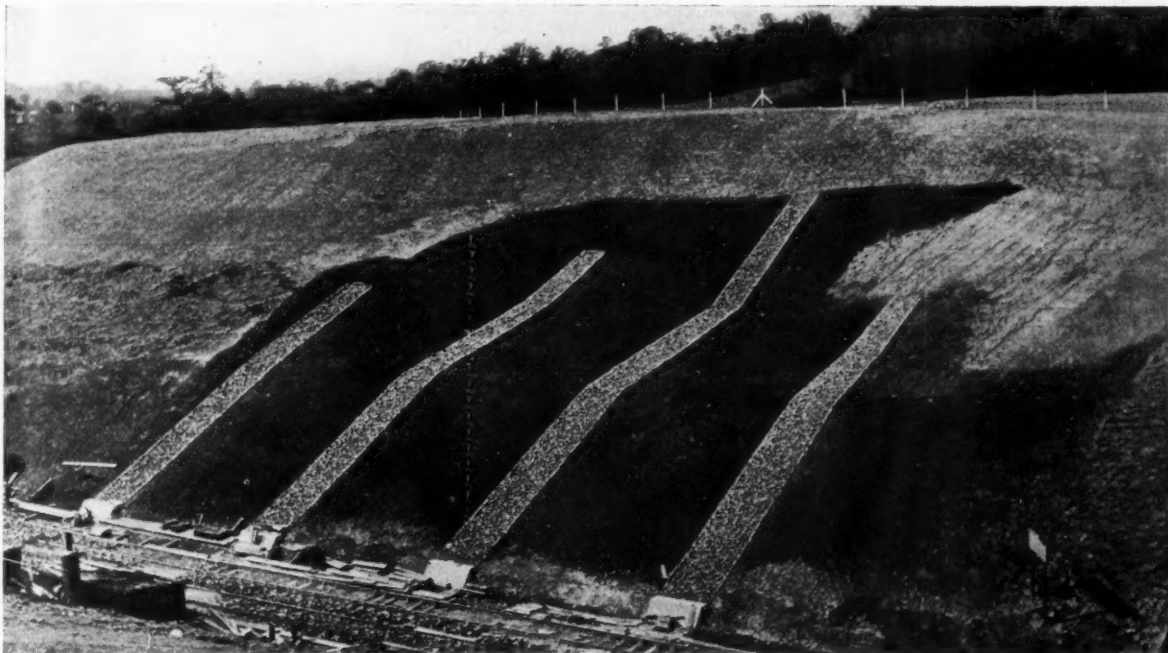
that Dr. Terzaghi in his recent work on the Chicago Subway has proved beyond dispute the great value of the unconfined compression test, and it should appeal particularly to engineers on account of the fact that it can be carried out speedily and simply with relatively little and inexpensive apparatus, and that if necessary this apparatus can be taken to the site provided that compression tests only are required.

As mentioned previously, another very important application of the new knowledge is to the determination of the maximum permissible pressures under foundations in cohesive soils. It may therefore be of interest to give brief particulars of a recent investigation of the strata at the site of a new bridge.

On putting down borings a stratum of

and a range of values of natural moisture content, an estimate was made of the probable settlement by comparison with a calculation which had been made by the Building Research Station staff for another structure founded in a clay having very similar characteristics. The information so obtained was sufficient to enable a decision to be made as to the type of foundation to be adopted, and it may also be of service in determining what special provision, if any, must be made to allow for the effects of settlement of the structure.

It should be mentioned that a proper settlement analysis is a process involving a considerable amount of boring and sampling followed by a somewhat lengthy routine of testing and computation, which demand both a fully-equipped



View of cutting, showing completed drainage and reforming works

stitutes a very definite step towards the ultimate solution of the problem of stabilising this area or at least of attaining a complete understanding of the causes of the movements.

Both the foregoing investigations and others carried out since have shown that, although at present, knowledge on the subject of slips is far from complete, very valuable information can be obtained from the simple unrestrained compression test on both undisturbed and remoulded samples of clay, and that for the purposes of comparison of the properties of different clays the liquid limit and plastic limit tests originated by Atterberg can be of considerable assistance. The author would therefore like to take this opportunity of urging all investigators in this field to make as many tests of these properties as the time available on any work will permit so that when hostilities cease the collation of this data may form a stepping stone to more rapid advances in the knowledge of the distribution and properties of the various cohesive soils encountered in civil engineering in this country.

In this connection it should be noted

ballast was found overlying clay, but, on account of the softness of the top strata of the latter, considerable doubt was felt about the practicability of adopting a normal type of foundation, and consideration was given to alternative types which would transfer the pressure to a greater depth. From an examination of such geological information as was available, the author felt that this clay stratum must be one of the well known beds and that at a slightly greater depth consistent and sound clay of an adequate bearing capacity should be found. Subsequent deepening of the borings proved that this was so, and compression tests on undisturbed samples of the clay showed a shear strength of about 7.5 lb. per sq. in. The corresponding maximum bearing capacity as calculated from the formulae evolved by Prandtl and other authorities, suitably modified to allow for the effect of the overburden of the surrounding soil was approximately 3.5 to 4.2 tons per sq. ft.

No consolidation tests were carried out on this clay, but having obtained the values of the liquid limit and plastic limit

laboratory and an expert knowledge of the stress distribution which may occur under the foundation. It is, however, to be hoped that if sufficient data is accumulated as to the actual settlements of bridge and other structures, together with the simple classification tests on the clays on which they may be founded, then in course of time it may be possible to compile a comprehensive summary from which the probable settlement of any structure could be estimated with sufficient accuracy for engineering purposes by reference to the records of other structures founded in similar strata.

On the bridges on the new Chessington line of the Southern Railway accurate levels were taken of some of the structures from the commencement of the work and the settlements recorded. It was found that there was a gradual and general settlement of the foundations over a period of some months, and after this period, no further movement took place. On the type of clay found there the maximum settlement was about 1½ in. to 1¾ in. under an applied load of approximately 2 tons per sq. ft.



Space does not permit of a detailed description of other problems in which a few simple soil tests have been of considerable value in arriving at a solution, but a brief reference will be made to one or two in conclusion.

In one case of a tunnel driven through a hard red shaley Devonian clay some doubts were felt about the stability of the shallow side-wall footings on account of the fact that the clay was working up through the permanent way. Holes were jumped through the side walls of the tunnel and undisturbed samples were obtained of the surrounding clay by driving into it a specially prepared sampling tube. Other undisturbed samples were also taken at various depths in front of the footings by sinking trial holes in the tracks.

From the information so obtained it was shown that there was no evidence of immediate risk of movement of the footings, and that the working up of the clay in the track was associated with but a shallow depth of softening. It was, however, decided that the tunnel should be provided with a reinforced concrete invert at some convenient opportunity in order to provide a more stable track and as a safeguard to the footings.

A similar problem on which prelimi-

nary tests have been carried out recently is the one which has engaged the attention of engineers since the first inception of railways, namely, the stabilisation of permanent way laid on clay formation. A description was given in THE RAILWAY GAZETTE for December 3, 1937, of how this troublesome problem was dealt with in the cutting in Weald Clay at Hildenborough. The case now under consideration is probably a rather more difficult one since it concerns four intensely used parallel tracks laid in a cutting in brown London clay.

Preliminary soil tests have shown the clay to be full of fissures and that it has a very much higher liquid limit than the Weald clay. It is therefore possible that it may be more difficult to drain it satisfactorily, and to prevent it breaking down by absorption of water before this has had time to find its way into the drainage system.

Further work has yet to be done on this matter and it appears to be a field offering scope for considerable research. On the Swiss Federal Railways a layer of asphalt has been used with apparent success as a means of waterproofing the clay surface in troublesome formations, and the author believes that in certain other foreign railways galvanised corrugated

sheet steel has been used for the same purpose. The latter scheme would no doubt offer difficulties from the point of view of corrosion and might very probably be impracticable where track circuits were in use for signalling purposes.

In conclusion the author would like to suggest that the fields in which railway engineers are most in need of knowledge and in which research could very profitably be directed are:—

- (a) Inexpensive waterproof coatings or carpets which can be used on the side slopes of banks or cuttings to prevent the penetration of rain, and which will be sufficiently resistant to frost heave or other effects of weather.
- (b) Corresponding methods of treating the formation.
- (c) Swelling pressures of clays and active pressures on retaining walls and other similar structures.
- (d) Whether appreciable plastic movement of a foundation on clay can take place at pressures below those calculated from the theories of Prandtl, Terzaghi, and others which are based on ultimate shear strength.

## L.N.E.R. Training School for Station Clerical Staff

*The third clerical training school to be established by the company was opened recently by Mr. C. H. Newton*

MR. C. H. NEWTON, Chief General Manager of the London & North Eastern Railway, opened on February 22 a training school for station clerical staff, the third to be established by the company. At the two similar schools, at Scarborough and Whitley Bay, buffet cars at stations are used as classrooms, and boarding houses as living quarters; but the new school is the first of its kind in this country in that it is situated entirely under one roof. It is contained in Watton House, Hertfordshire, formerly the residence of the late Sir Nigel Gresley, and accommodates twenty pupils at a time, the first intake of whom consists of girls, although some courses will be run for boys. Intensive training of four weeks' duration is given in passenger and goods station accounts, and it is expected that, as the result of the course, the pupils, who are selected mainly from members of the clerical staff who have completed one or two months' service, will attain a proficiency which would require a year's station experience.

Mr. E. S. Hobbs has been selected as instructor, and has been released from his post of Chief Clerk at Chesham Station to take over his new duties. He is assisted by a lady supervisor, Miss M. A. Vicary, of the City Manager's Office.

The training equipment includes a dummy booking-office, complete with stocks of tickets, telegraph instruments, ledgers, and parcels scales. The instruction is realistic in every way, and a pupil may be required to issue a ticket to any destination; this often entails reference to a map, and a knowledge of routes and fares thus is quickly gained. Students are taught all branches of station accounting-work and receive instruction also in telegraphy and the Morse code.

An advantage of a residential school of this kind is its inculcation of the team spirit and of a realisation on the part of the pupils that they belong to an organisa-

tion which takes an interest in their careers, rather than being cogs in a machine. Students receive free board and lodging and their full wages; and travel to their homes at week-ends is facilitated by the company. All domestic and catering arrangements are carried out through the L.N.E.R. Hotels Department.

Those present at the opening ceremony, in addition to Mr. C. H. Newton, included Messrs. O. H. Corble, Assistant to Chief General Manager; A. L. Gibson, Passenger Manager, Southern Area; C. K. Bird, Goods Manager, Southern Area; C. G. G. Dandridge, Advertising Manager & Assistant Passenger Manager, Southern Area; M. A. Cameron, Assistant Goods Manager, Southern Area; George Dow, Information Agent; L. H. K. Neil, London City Manager; and L. J. Moorcock, London District Passenger Manager. In declaring the school open, Mr. Newton said that he had taken a great interest in the subject of technical education, and he could tell them that things were very different now from what they used to be. When he had joined the railway service some forty years ago as a junior clerk, he had been appalled to find that no facilities existed to enable the staff to acquire a knowledge of office routine. A new entrant had had to pick up the work as best he could, and any tendency to ask questions about another man's work had been deprecated strongly. So incensed had he become at this state of affairs that after a short period of service he had written a strongly-worded letter to the editor of the railway company's magazine, pressing for classes to be instituted for the education of the staff in railway matters. The editor had published his very-scathing letter, but his superior officers had thought very poorly of it and his then brief railway career nearly had come to an untimely end. However, better counsels had prevailed,

and the ultimate outcome had been the formation of the first Accountant's Office Students Society, of which for many years he had held the position of Honorary Secretary. Therefore, he thought he could claim truly to have been a pioneer in railway technical education.

Since then great strides had been made with railway education, and beginners on the staff for many years had had available to them courses of lectures on station accounts, signalling, and so on; and a little later in their careers they had been able to attend lectures on more advanced subjects such as railway operating, law, and economics. And now the austerity years of war had created special conditions for the young railway clerk. There were vacancies in the ranks, and probationers—both male and female—had an opportunity to qualify for responsible positions at a comparatively early age, provided they had the ability, and could rise to the occasion.

As a young man he had adopted a motto, which had served him well all his life, and there never was a time when it could be applied more appropriately than the present. That motto was "Be prepared—the opportunity may only come once your way." He suggested to those who were on the threshold of their railway careers that they also "be prepared," and he wanted to help them in that, which was why the school, the third to be opened by the company, had been formed. That was the reason also for their having been given leave from their ordinary duties to spend four weeks in a charming Hertfordshire house, away from the distractions connected with their daily work. Mr. Hobbs was a specialist in the work, and they would be able to put questions to him, and test their knowledge with that of their colleagues. Their well-being and comfort were in the capable hands of Miss Vicary.

Mr. Newton said that, as he looked through the windows of the room, he looked also into the future, and felt that they were passing another milestone in railway staff education, for there was an idea and a model that might well attain maturity in the post-war years.



*Above : Watton House, the school premises*



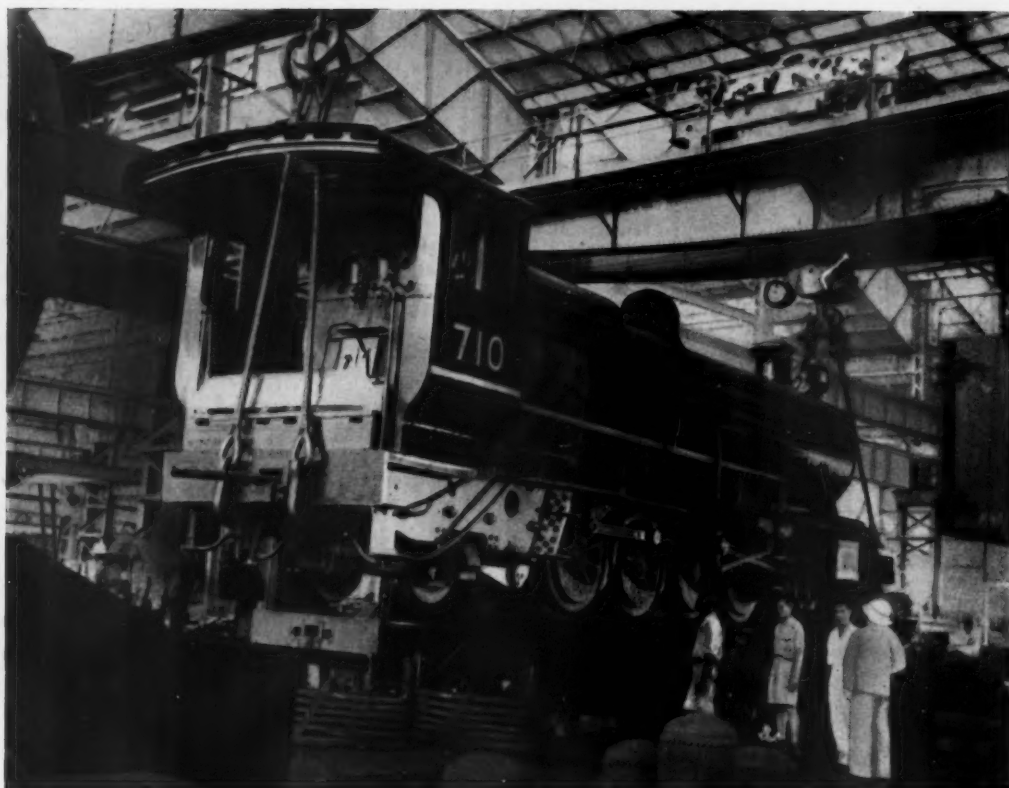
*Right : Mr. C. H. Newton, Chief General Manager, L.N.E.R., with Miss M. A. Vicary, lady supervisor at the school, and some of the pupils*



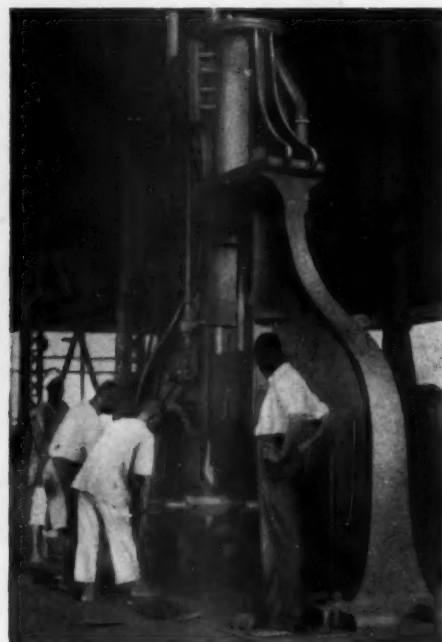
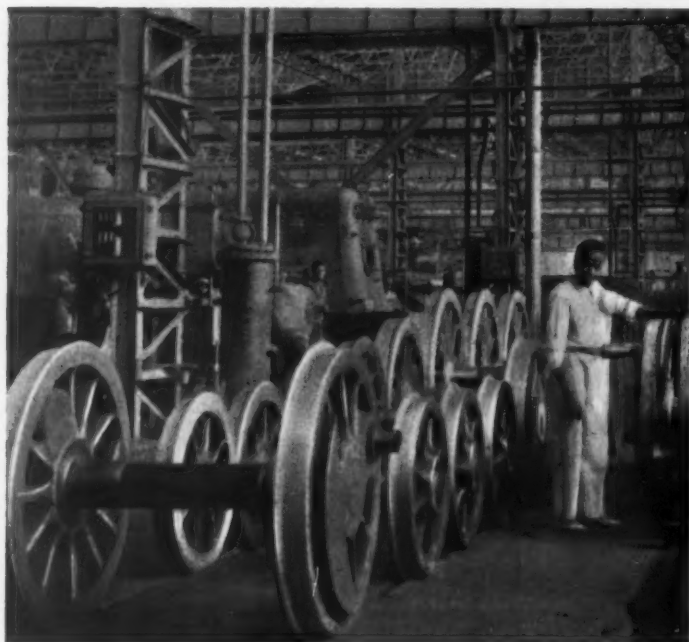
*Mr. E. S. Hobbs, the instructor, supervising the work of students, some of whom can be seen also in the background engaged in learning booking-office duties*

**L.N.E.R. TRAINING SCHOOL FOR STATION CLERICAL STAFF**

*(See article on opposite page)*



*Some idea of the magnitude of the work of the Crown Agents in placing contracts for the plant and machinery of Colonial railways is given by these views of the Nigerian Railway repair shops at Lagos. Above, a locomotive is being lifted by two 50-ton travelling cranes*



*Left: In the wheel shop of the railway works at Lagos. Right: Africans operating a 30-cwt. steam-hammer smithy*

IN THE REPAIR WORKSHOPS OF THE NIGERIAN RAILWAY



## RAILWAY NEWS SECTION

## PERSONAL

Mr. O. V. Bulleid, Chief Mechanical Engineer, Southern Railway, has been appointed to represent the Institution of Mechanical Engineers on the War Damage (Earth Movements) Committee of the Institution of Civil Engineers.

Mr. H. J. Birkbeck, who, as recorded in our January 8 issue, has been released from his duties as District Goods & Passenger Manager, Peterborough, L.N.E.R., as from January 4, to take up special work in connection with Road & Rail Conference matters, commenced his railway service with the former North Eastern Railway in

Mr. A. Duncan, C.I.E., Agent & General Manager, Bengal-Nagpur Railway, whose death was recorded in our February 5 issue, entered the company's service in March, 1903. After completing his training in the Traffic Department, he was confirmed ten months later as an Assistant Traffic Superintendent. Later he acted on several occasions as District Traffic Superintendent, and was for a time Personal Assistant to the Agent. In 1920 he was confirmed as District Traffic Superintendent, and acted as Deputy Manager. In July, 1921, his services were lent to the Government of India, and he was Assistant Secretary to the Railway Board for a period of about two years.

He is succeeded as Chairman by Lt.-Colonel Sir Henry Stephenson, Bt., D.S.O., a Director of the company.

Mr. D. Murray, District Goods Manager, Hull, L.N.E.R., who, as recorded in our January 22 issue, has been appointed to act as Assistant Goods & Passenger Manager, North-Eastern Area, York, was educated at Derby School and Jesus College, Oxford, where he obtained a First Class in Natural Science (Chemistry). After a period on research work he joined the L.N.E.R. in March, 1924, as a traffic apprentice, and, after occupying posts in the Middlesbrough District Goods Manager's



**Mr. H. J. Birkbeck**

Who has taken up special work in connection with the Road & Rail Conference



**The late Mr. A. Duncan**

Agent, Bengal-Nagpur Railway, 1937-39  
Agent & General Manager, 1939-43



**Mr. D. Murray**

Appointed to act as Assistant Goods & Passenger Manager, North-Eastern Area, L.N.E.R.

the District Passenger Agent's Office, Darlington, in 1906. He subsequently served in the Mineral and Goods Departments at Darlington, Middlesbrough, and York, and, in 1913, had charge of the North Eastern and East Coast Railways' stands at the Ghent Exhibition. In 1914, his services were loaned to the Tees Development Association, but he was called up for military service on the outbreak of war. Mr. Birkbeck was demobilised in 1919 with the rank of Lieutenant, R.T.O., and then for two years he was stationed in London in connection with the investigations of the Rates Advisory Committee. After a period of training in the Operating Department at Hull he was transferred to the office of the Chief General Manager; afterwards he served for seven years in the Goods Manager's Rates & Charges Section. His appointment as District Goods & Passenger Manager, Peterborough, dates from 1936. Mr. Birkbeck took an active part in the system of charges authorised by the Road & Rail Traffic Act, 1933, and in questions in connection with the L.M.S.R.-L.N.E.R., and L.M.S.R.-L.N.E.R.-G.W.R. Pools, as member of No. 1 Pooling Sub-Committee.

Mr. L. V. Kenward has resigned his position as Director of the Rubber-Products Group of the Dunlop Rubber Co. Ltd., after 35 years' service with the company.

He returned to the Bengal-Nagpur Railway and held various administrative posts, including those of Superintendent, Transportation, and Deputy Manager; he was confirmed as Transportation Manager in 1929. In May, 1937, he was appointed Agent; in 1939 the title of General Manager was added to that of the former. Mr. Duncan was an Honorary A.D.C. to His Excellency the Viceroy, and for a time commanded the B.-N.R. Battalion, Auxiliary Force, India. He was President of the Indian Railway Conference Association in 1941-42.

We regret to record the death on February 25, at the age of 64, of Mr. Harry Davis, who was Assistant (Central Office) to the Secretary & Assistant to the President, L.M.S.R., 1926-38.

Mr. H. B. Webster, Assistant (Rates & Charges) to the Chief Commercial Manager, L.M.S.R., has been elected Chairman of the Irish & English Traffic Conference for 1943. This will have been the nineteenth successive year in which Mr. Webster has held this position.

Mr. W. H. McConnel has resigned from his position as Chairman of the Sheepbridge Coal & Iron Co. Ltd., but remains a Director.

Office and in the Goods and Passenger Managers' Staff Section at York, he was appointed in January, 1930, Staiths Superintendent at the Hartlepoons. In November, 1931, he became Dock Superintendent at the St. Andrew's Docks, Hull, and, in April, 1935, Goods Agent for Hull. Mr. Murray was appointed Assistant District Goods Manager, Newcastle, in January, 1939, and from the outbreak of war acted as District Goods Manager there until November, 1940, when he was transferred to Hull in the same capacity.

Mr. W. L. Box, on account of ill-health, has relinquished his position as General Manager & Engineer, Liverpool Overhead Railway. By permission of the Mersey Railway Company, Mr. J. H. Fowles will carry out temporarily the duties of Acting General Manager & Engineer pending the appointment of a successor to Mr. Box.

We regret to record the death, at the age of 70, of Colonel Azel Ames, who had been associated with the cable and wire industry in the U.S.A. for some 35 years, before which he had held important signal-

engineering posts on the New York Central and other systems, and civil-engineering posts on the Boston & Maine and other lines. He had been a Member of the Institution of Railway Signal Engineers since 1915.

We regret to record the death on February 19 of Mr. W. H. Fraser, who was Publicity Agent, Great Western Railway, from 1924 until his retirement in 1931. Mr. Fraser entered the company's service in April, 1892, in the Divisional Engineer's Office at Taunton, to assist in the preparatory work connected with the conversion of the line from broad to narrow gauge, and in the same month was appointed to the permanent staff. In February, 1896, he was transferred to the Chief Engineer's Office at Paddington, and was employed

Mr. F. G. Hewitt, Stationmaster, Birmingham (New Street), L.M.S.R., who, as recorded in our February 26 issue, has been appointed Stationmaster, St. Pancras, joined the former Midland Railway at Broughton Astley in 1900 as a junior, and was transferred to Castle Donnington a year later as a clerk. After further experience at Derby Booking Office; at Walsall, as a booking and telegraph clerk; and at Doe Hill, as a clerk, extending over the period 1904-11, he was transferred to Sheffield as a relief clerk in the latter year, and later was appointed Relief Stationmaster at Chesterfield. In 1923, Mr. Hewitt's services were placed at the disposal of the Superintendent for Organisation & Staff, L.M.S.R., and he was appointed Staff Inspector; three years later he was transferred to the Freight-Services Control

Mr. Orlando Cecil Power, who has been appointed a Director of the Birmingham & Midland Motor Omnibus Co. Ltd., as recorded in our issue of February 26, was born in Birmingham on July 24, 1879. He was educated at Camp Hill Grammar School and began his business career as a private secretary, serving for four years in that capacity to the Hon. George F. Parker, United States Consul in Birmingham, whom Mr. Power nearly accompanied on his return to America to take up a career as a journalist. However, Mr. Power decided to remain in this country, and one of his brothers went to America in his place. In the closing years of the nineteenth century a series of important changes took place in Birmingham district transport, and it was during this period that Mr. Power became associated with the enterprise in which he has



Photo]

[Lafayette

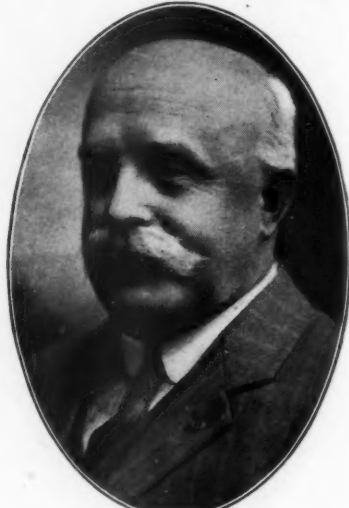
**The late Mr. W. H. Fraser**

Publicity Agent, Great Western Railway, 1924-31



**Mr. F. G. Hewitt**

Appointed Stationmaster, St. Pancras, L.M.S.R.



**Mr. O. Cecil Power**

A Director and Traffic Manager of the Birmingham & Midland Motor Omnibus Co. Ltd.

successively in various branches in that office, including staff work and accounts. In 1903 he was appointed Accounts Clerk to the New Works Engineer, a post which he held during an interesting period of engineering construction. From October, 1907, until August, 1915, he was engaged in the Engineering Section of the Chief Accountant's Office, and his work included the auditing of divisional-office accounts. In the latter year he was selected for transfer to the Department of the Surveyor & Estate Agent, to organise a scheme for repairs to the company's houses. After the armistice in 1918 he was engaged for special publicity work by the Railway Executive Committee; and in October, 1922, he was appointed to the Publicity Department of the Superintendent of the Line's Office, becoming Publicity Agent two years later. Mr. Fraser was a firm believer in the future of holiday resorts served by the company, and he played a large part in their development.

The L.M.S.R. announces that the Herbert Jackson Prize for 1942 has been awarded to Mr. J. Dearden, of the Metallurgical Section of the Research Department, for papers entitled "The Inspection of Welded-Steel Joints in relation to their Static Mechanical Strength" and "The Influence of Welding Defects on the Resistance to Fatigue of Welded-Steel Joints."

Section of the Chief General Superintendent's staff. In 1929 he took his place in the freight-control service of the newly-created Divisional Superintendent of Operation at Derby, where he remained until September, 1933. Mr. Hewitt then was promoted to be Stationmaster at Sheffield, and held that position until his appointment in March, 1937, as Stationmaster, Birmingham (New Street).

#### L.N.E.R. APPOINTMENTS

The L.N.E.R. announces the following appointments:—

Mr. Miles Beevor has been appointed Chief Legal Adviser to the London & North Eastern Railway Company. Mr. W. H. Hanscombe will continue to be Solicitor to the company.

Mr. R. C. Rattray, District Engineer, Glasgow, to be Assistant to Chief Engineer (Development).

Mr. G. F. Fiennes, Acting Assistant to Superintendent, Southern Area (Eastern Section), to be District Superintendent, Nottingham.

Mr. W. P. Allen, Acting District Goods & Dock Manager, West Hartlepool, to be Acting District Goods Manager, Hull.

Mr. A. E. Purnell, Stationmaster, Harrogate, to be Acting Assistant to District Superintendent, Leeds.

become so well known. Mr. Power retains his position as Traffic Manager of the Birmingham & Midland Motor Omnibus Co. Ltd. and he is also Chairman of Black & White Motorways Limited, and a Director of the Trent Motor Traction Co. Ltd., the Potteries Motor Traction Co. Ltd., the Leamington & Warwick Transport Co. Ltd., Majestic Express Motors Limited, the North Warwickshire Motor Omnibus & Traction Co. Ltd., and the Stratford-upon-Avon Blue Motors Limited. He has been Chairman of the Birmingham Horse & Motor Vehicle Owners Association for 32 years (and is also President), and was for 10 years Chairman of the Birmingham & District Section of the Institute of Transport, of which he is now Honorary Treasurer. In addition, he is Chairman of the Birmingham Safety First Council and Vice-Chairman of the Roads Improvement Association (Midland Branch).

Mr. William Good, B.A., A.C.A., Managing Director of Brush Coachwork Limited, has been appointed to the board of the Brush Electrical Engineering Co. Ltd.

Mr. Joseph Harrison, Stationmaster, Euston, L.M.S.R., recently received a gift of a pair of cuff links, embossed with the Royal crown and crest, from the Duchess of Kent.

## TRANSPORT SERVICES AND THE WAR—180

### Double Summer Time

This year Double Summer Time is to begin on the morning of Sunday, April 4, and to end on the morning of Sunday, August 15.

### Bus Schools for Military Drivers

A new London Transport school for training military drivers was opened on January 19 in a town on the outskirts of London; 60 drivers have begun training there. Since February, 1940, two such schools have been in existence for training military personnel in driving and maintenance work. To-day, 430 officers and 3,300 other ranks, British and Canadian, have passed through these schools.

### The Banned Areas

The Ministry of Home Security has announced that the ban on pleasure visits to the coastal areas between the Wash and the Thames and between Hastings and Littlehampton and to the Isle of Wight, which was suspended until March 1, will remain suspended until April 1. The ban on pleasure visits remains in force in the following areas:—

- (1) In the whole of Kent, except
  - (a) Those parts within the Metropolitan Police District;
  - (b) the boroughs of Dartford, Gravesend, Maidstone, and Tunbridge Wells;
  - (c) the urban districts of Northfleet, Orpington, Sevenoaks, Southborough, Swanscombe, and Tonbridge;
  - (d) the rural districts of Cranbrook, Dartford, Hollingbourne, Maidstone, Malling, Sevenoaks, and Tonbridge, and parts of the rural districts of Strood, Tenterden, and West Ashford; and
- (2) That part of Sussex east of Hastings and extending northwards to the Kent boundary.

Information as to whether any particular place is still subject to the ban may be obtained from notices displayed on main railway stations, or from the police or bus enquiry offices.

### Transport of Flowers

At the annual general meeting, in London on February 16, of the Royal Horticultural Society, Lord Aberconway, the President, said that he had asked the Minister of War Transport to allow flowers up to a weight of 10 tons a year to be taken by passenger train to the society's shows. He had, however, been unable to persuade the Minister "that flowers—like beer, tobacco,

dog racing, theatres, cinemas, and the B.B.C.—were a privileged luxury." He added that the flowers which decorated the hall were brought by himself in one hand to avoid breaking the transport regulations, and that they had been grown out of doors to avoid breaking the fuel regulations.

### London Conductresses

To simplify the work of training London Transport women conductors, schools have been set up at six points in the Central area. Recruits are thus able to attend schools within easy reach of their homes. The fortnight's training includes 6 days of practical experience on a service bus. About 7,500 women have now replaced male conductors on war service.

### L.N.E.R. Suburban Alterations

From February 1 various alterations were introduced in the L.N.E.R. London suburban services to and from Liverpool Street, Fenchurch Street, Kings Cross, and Marylebone, both in the interests of more exact punctuality, and also to meet the alteration in the flow of homeward evening traffic due to the later hours of daylight. Certain trains for which the public demand had decreased, for the foregoing and other reasons, were cancelled. Additional evening trains from Liverpool Street, from Mondays to Fridays, are at 6.12, 6.35, and 7 p.m. to Chingford, 6.4 p.m. to Enfield Town, and 6.12 p.m. to Loughton.

### British Airways in War

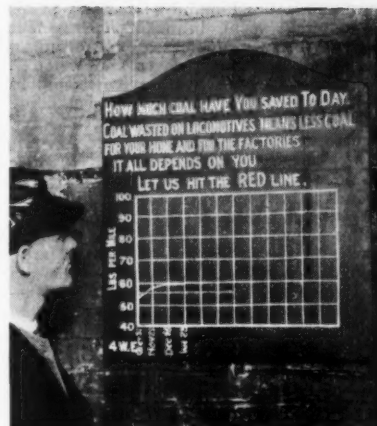
During the calendar year 1942, the British Overseas Airways Corporation provided ton miles amounting to approximately 21,600,000. This compares with 12,587,294 ton miles in 1941, and 8,674,972 in 1940. It is estimated that by the end of December the corporation's aircraft had flown about 10,000,000 miles, during which time they were in the air about 67,250 hours. Passengers carried total approximately 43,000, and letter mail about 950 tons. In addition, some 2,250 tons of cargo, excess luggage,

Route	Aircraft
Baltimore—United Kingdom, via Bermuda and Lisbon. 3 services every 30 days.	Boeing flying boats.
Montreal—United Kingdom, via North Atlantic. Several services weekly.	Liberator landplanes.
Lagos—Baltimore, via South Atlantic.	Boeing flying boats.
Lagos—United Kingdom.	Boeing and Catalina flying boats, and Liberator landplanes.
United Kingdom—Foyens.	"G" class flying boats.
West of England—Eire. To connect with P.A.A., A.E.A., and Boeing services.	"F" class and Whitley landplanes.
United Kingdom—Lisbon. Several services weekly.	"G" class flying boats, and D.C. 3 and Liberator landplanes.
Durban—Calcutta.	S.23, S.30, S.33 flying boats.
Cairo—Karachi.	Wellington landplanes.
Cairo—Lagos.	S.23, S.30, S.33 flying boats.
Cairo—Western Desert.	Lockheed 10A, 14, Lodestar, Hudson, or Wellington landplanes.
Cairo—Teheran—Habbaniya.	Lockheed 14, Lodestar, or Hudson landplanes.
Cairo—Asmara.	Lockheed 14, Lodestar, or Hudson landplanes.
Asmara—Addis Ababa.	Lockheed 14, Lodestar, or Hudson landplanes.
Asmara—Karachi.	Lockheed 14, Lodestar, or Hudson landplanes.
Khartoum—Nairobi.	Lockheed 14, Lodestar, or Hudson landplanes.
Khartoum—Lagos.	Lockheed 14, Lodestar, or Hudson landplanes.
Khartoum—Asmara.	"E" class landplanes.
Madagascar service. Kisumu—Diego Suarez, via Mombasa, Dar-es-Salaam, Lindi, and Pamanji.	"E" class landplanes.

etc., were carried. The total passenger-miles flown amounted to approximately 91,000,000. The accompanying table shows most of the routes at present in operation, and the types of aircraft employed. For security reasons, the list omits certain services altogether, and does not record the frequencies of various other services.

### Fixed Bus Stops

Fixed stopping places for London Transport buses, which are in use throughout the Central London area, are being extended gradually to the outer areas, and by June the London Passenger Transport Board expects to have arranged



At every L.M.S.R. locomotive shed is displayed, in graph form, the figure of coal consumption per engine mile for all engines allocated to individual motive power depots. This is resulting in a reduction of coal consumption

fixed stops within the area bounded roughly by St. Albans, Leatherhead, Slough, and Hornchurch. Most of the signs indicate request stops. The extension of this practice has arisen from the need to conserve fuel and rubber, and drivers therefore stop only on being signalled.

### Middle East Road Maintenance

The maintenance of strategic roads traversing the region between the Persian Gulf and the Caspian Sea, in Iraq and Persia, has been facilitated by the use of soft natural bitumen from Iraq, unexploited deposits of which, in seams of 1 to 3 ft. deep, have been found in dried-up lake beds. Mechanical excavators lift the bitumen with comparative ease. It is then transported to heating kilns, which are built entirely of local materials at little

cost, and are spaced along the roadway at 16 to the mile. In these, the blocks of bitumen are heated until they are sufficiently liquid, and 25 per cent. of petroleum is then added. An excellent road surfacing material is said to result. As the work progresses, the kilns are abandoned.

### The French Fare Increases

The increases in passenger fares introduced by the French National Railways, which came into effect on October 15 last (see our October 30 issue, page 426), comprise 30 per cent. on first class, 27 per cent. on second class, and 22 per cent. on third class. The increases are stated to have

## TRANSPORT OF FLOWERS

In exercise of the powers conferred upon him by Regulation 55 of the Defence (General) Regulations, 1939, and of all other powers enabling him in that behalf, the Minister of War Transport hereby orders as follows:—

1. No person shall consign or tender or cause to be consigned or tendered for conveyance by rail, or take with him upon any train, any flowers or plants other than the flowers or plants referred to in paragraph 2 hereof. Provided that a Railway Company may in its absolute discretion permit a passenger to carry with him in his compartment, for purposes unconnected with trade or business, a small quantity of flowers or plants unpacked, or so packed as to disclose their nature on sight.
2. This Order shall not apply to the following:—
  - (i) flowers or plants for export for which a certificate of health for export has been granted by the Ministry of Agriculture;
  - (ii) plants used for producing food crops;
  - (iii) hardy nursery stock not in soil or in pots.

3. In this Order "flowers" shall include cut flowers and decorative foliage; "plants" shall include plants in pots, in soil or otherwise; and "hardy nursery stock" shall mean trees, shrubs and bushes with persistent hard woody stems, but not including herbaceous plants.
4. This Order shall come into force on the 16th day of February, 1943, and may be cited as "The Transport of Flowers Order, 1943."

Signed by authority of the Minister of War Transport this twentieth day of February, 1943.

(Sgd.) P. FAULKNER,  
Minister of War Transport.

RAILWAY EXECUTIVE COMMITTEE

The R.E.C. poster announcement of the ban on transport of flowers



been necessitated mainly by rising prices of materials (coal, lubricants, permanent way, etc.) and by increased expenditure in respect of personnel (wages and welfare). Workmen's season tickets were exempted from any increase. With a view to avoiding any increase in the general price level, goods rates were not increased.

Advantage was taken of the fare reorganisation to abolish certain peculiarities in French railway fares which were said to have caused difficulties in the compilation of international through fares. These included station fees, levied in France on most fares, including children's. With the introduction of the increases last October, the supplements have been included in the fares to facilitate accounting.

#### Peat Production in Germany

With the object of stimulating peat production, a new company entitled Deutsche Torf G.m.b.H., was formed in Berlin towards the end of last year, with a capital of RM. 100,000. This is one of the group companies established with the object of organising and controlling industries in the German-occupied Eastern Territories.

#### German Transport Control in Eastern Europe

The German Minister of Transport has established a General Transport Control for the East (*Generalverkehrsdirktion Osten*), which is responsible direct to him. It began work on December 1, 1942, and at the same time the Eastern section (*Zweigstelle Ost*) in the German Ministry of Transport ceased to exist. The General Transport Control for the East directs the railways,

road traffic, and inland waterways so far as questions of principle are not involved. It directs the employment of the various means of transport and of the personnel of the transport authorities. Details were given in the *Breslauer Neueste Nachrichten* of December 15.

#### Increased Wagon Loading in Europe

Under German direction, many of the European railway systems have increased the permissible loading capacity of goods wagons beyond the weight limit indications fixed in normal times, as recorded from time to time in these columns. The following is a complete survey of the position at the beginning of the present year:—

##### REICHSBAHN WAGONS

Excess loading to the extent of two metric tons beyond the carrying capacity shown on all goods wagons bearing the inscription "Deutsche Reichsbahn" (or the abridged inscription "DR" introduced some months ago) has been adopted both for internal traffic (namely, within the borders of the Old Reich and the territories annexed to it, in addition to the General-Gouvernement), and for traffic with the German-occupied countries. Reichsbahn wagons not suitable for overloading bear a white cross behind the inscription of the loading capacity.

Overloading is strictly forbidden in respect of wagons belonging to the railways of the U.S.S.R. and converted for use on standard-gauge railways. In addition to the ordinary markings, these wagons show the indication "Ru" (meaning "Russia"). In respect

of journeys ending or originating in other countries, Reichsbahn wagons may be overloaded as follows: One metric ton in excess of normal loading capacity in respect of traffic with the Swiss Federal Railways, and two metric tons in excess in respect of traffic with the following railways:—

Belgian National Railways  
Bohemian-Moravian State Railways  
Croatian State Railways  
Danish State Railways  
French National Railways (including wagons in transit to or from Spanish frontier stations)  
Hungarian State Railways  
Hungarian private railways  
Italian State Railways  
Netherlands Railways  
Slovak State Railways

##### OTHER GOODS WAGONS

For internal traffic on their respective systems, as well as for German traffic, loading in excess of the normal loading capacity is permitted in the following way:—

One metric ton excess for wagons of the

Belgian National Railways  
Danish State Railways  
French National Railways  
Netherlands Railways  
Slovak State Railways  
Swiss Federal Railways

Two metric tons excess for wagons of the Italian State Railways of which the normal loading capacity is 17 metric tons or more.

Ten per cent. of the loading capacity for wagons of the Italian State Railways of which the normal loading capacity is below 17 metric tons.

The normal loading capacity of Hungarian wagons may be exceeded by ten per cent.

#### Mexican Strategic Road

It is reported that the road from Zacatepec (Puebla) to Tuxpan (Vera Cruz) was completed towards the end of last year. The road is 12 metres (39 ft.) in width, and passes through one of the wealthiest agricultural regions in Mexico.

#### New Railway Tunnel in Alaska

Boring was complete on November 22 last, of the new railway tunnel 13,000 ft. long on the cut-off which is being constructed to improve the gradients and alignment of the Alaska Railroad. The work was accomplished in exactly a year.

#### Railway to Alaska Deferred

The U.S.A. War Department has decided to defer the proposed railway from Prince George (on the C.N.R., in British Columbia), through Yukon Territory, to connect with the Alaska Railroad at Koko, on the grounds that no military necessity exists for its construction at the present time.

#### President Roosevelt's Rail Journeys

During the year 1942, President Roosevelt travelled 8,396 miles on U.S.A. railways on his tours of inspection of war industries. He is reported to have remarked that never before had he "moved from coast to coast, from border to border, with as much ease and comfort, rest and enjoyment."

#### Highway Improvement in Alaska

Towards the end of November last, the U.S.A. military authorities announced the completion of a new link in the highway system of Alaska. It extends from the Alcan Highway through the Tazlina and Mantanuska river valleys to Palmer, on the road running north from Anchorage, and thus gives Anchorage a direct highway connection with the Alcan Highway. The new link has been under construction by the Alaska Highway Commission for two years.

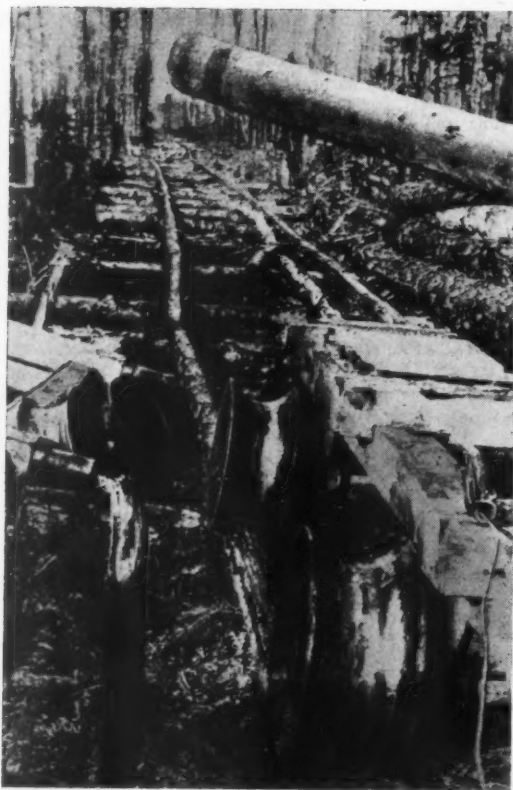
#### Compulsory Train Service Alterations in U.S.A.

Special orders are now being issued by the Office of Defense Transportation, which previously had "frozen" passenger schedules on the basis of the then existing timetables, compelling the withdrawal of any train services that it regards as superfluous.

Special Order O.D.T. R-1 of December 3 required the Chicago, Burlington & Quincy RR. to discontinue trains Nos. 41 and 44 between Edgemont, South Dakota, and Billings (Montana); a saving of 730 train miles daily is thereby effected, releasing three locomotives, four luggage cars, one combination car, two coaches, three diner-lounge cars, and two Pullmans. At the same time Order O.D.T. 2-5 authorises the railway, through its subsidiary, the Burlington Transportation Company, to substitute a bus service for the suspended trains, with the result that the territory will now be served by two buses and one train in each direction daily, instead of one bus and two trains.

Special Order O.D.T. R-2 requires the Southern Railway System to discontinue Trains Nos. 1 and 2 between New Albany and Princeton (Indiana), which are 106 miles apart; although only one locomotive and one combination car are saved in this case, freight movement over the route is expedited by the suspensions.

Special Order O.D.T. R-3 requires the International Great Northern RR. and the Texas & New Orleans RR. (subsidiaries of the Missouri Pacific and Southern Pacific respectively), to establish a daily shuttle service between Houston (Texas) and a shipbuilding plant at Deepwater,



Tree trunks used by the Germans to make a wooden rail track for gun-carrying trolleys, supplies, and troops, on the Volkov front between Leningrad and Lake Ilmen. The vehicles are mounted on wheel rims, giving the effect of pulley wheels. The arrangement is reminiscent of mediæval mining railway practice

12½ miles away, for the use of shipbuilding employees.

On November 25 the O.D.T. authorised the ten companies which operate a pool service between Chicago and Miami to run one additional train in each direction, with Pullman and coach accommodation, turn-and-turn about over the three routes by which the 29½ hr. streamliners now operate. These trains will serve all Florida East Coast points between Jacksonville and Miami.

#### New Road Link for Nicaragua

At the end of November, President Anastasio Somoza of Nicaragua announced that a supplementary convention with the U.S.A. had been signed, covering the construction of a road from San Benito (on the Inter-American Highway) to Rama (on the Escondido River). The U.S.A. will provide the necessary funds, and the road will be hard surfaced. Its construction will afford quicker transport between Nicaragua and the United States, and will also provide an important link in western hemisphere defence.

#### N.S.W. Railways and the War

In the recently-issued report of the New South Wales Department of Railways for the year ended June 30, 1942, reference is made to the activities of the department, in co-operation with the Commonwealth Government, in prosecuting the war effort, activities which were extended in both scope and intensity throughout the year under review. Defence works included laying 67 miles of track, the fabrication and erection of a building 154 ft. by 134 ft., and the supervision of the erection of a building 500 ft. by 140 ft. As in the previous year, a considerable volume of work was performed in the railway drawing office and workshops, and in the aircraft and munition annexes of the Department, for Commonwealth Authorities and for contractors handling defence orders.

In conformity with the policy of assisting the war effort wherever possible, sites were made available on railway land at various stations for the installation of charcoal production plants and distributing depots. Special rates were also made for the transport of charcoal.

The conveyance of military naval, R.A.A.F., and U.S.A., personnel *en route* to and from State and Interstate depots, camps, and strategic points, and the conveyance of military equipment and ordnance accompanied by troops, necessitated the movement of hundreds of thousands of men. Nearly all this traffic was moved in special trains.

Railway personnel numbering 4,548 were engaged solely on such defence works as tool making, tank production, the manufacture of aircraft, shell casings, radio-location equipment, and the provision of railway facilities at various parts of the State to meet military requirements. In addition, 253 members of the staff were on loan to Commonwealth and State departments for employment of specialised war work.

So heavy became the losses of personnel due to the railway department's policy (adopted at the outbreak of war) of releasing where possible every man who desired to volunteer for service with the Armed Forces at home or abroad, that it became necessary on April 23, 1942, to decide that no further leave should be granted to railway staff applying for enlistment in the Defence Forces. At that time there were over 1,300 vacancies in various grades requiring to be filled. Release of railwaymen for the Armed Forces is now sanctioned only when they can be replaced by women or released without replacement.

#### THE RAILWAYS OF MEXICO

(Concluded from page 241)

per cent., working expenses were higher by \$7,599,597, or 8.92 per cent., so that net earnings were actually lower by \$2,450,972, or 12.9 per cent. The number of employees on the National System declined from 44,295 in 1937 (the year of the formation of the Workers' Administration) to 43,483 in 1939, but the total of \$81,885,057 for salaries and other remuneration had risen in the same period to \$89,483,280, equivalent to an increase in the average yearly remuneration *per capita* from \$1,849 to \$2,058. Notwithstanding all that has been said, it may be doubted whether three years is a sufficiently long period to try out such an interesting experiment, and if it is eventually decided to abolish the Workers' Administration, it remains to be seen if the State Department can improve on it.

Mexico, with an area of 768,000 sq. miles, is about one-quarter the size of the U.S.A., with which it has a land frontier of over 1,500 miles. To the south the frontier of about 550 miles abuts on Guatemala and British Honduras. The central tableland, occupying the greater part of the country, averages 6,000 ft. above sea level, involving steep gradients in the rail approach to the capital. A complete list of all the Mexican railways at the beginning of 1942, according to information furnished by the Department of Communications & Public Works, is given in the table on page 241.

There seems to have been considerable activity in regard to the Mexican railways since the announcement on November 19 last by the U.S.A. State Department in Washington of an extensive programme to rehabilitate much of the main-line mileage of the Mexican National Railways, and to improve the equipment, with the help of the U.S.A. Government and a staff of technicians from the United States railways.

The initial programme provides for the rehabilitation of (a) the main line from Laredo (Texas) to Mexico City, *via* Monterrey, Saltillo, and San Luis Potosi; (b) the east-west line between Torreon and Monterey, *via* Paredon; (c) the section of the other great north-south line between Torreon and Chihuahua; and (d) the main line from Cordoba to the frontier of Guatemala at Suchiate, *via* Jesus Carranza and Ixtapetec. It is possible that (a) involves the gauge conversion of the link between Mexico City and Acambaro.

Closely associated with this programme of improvements is the important programme of construction of new railways which is being undertaken by the Mexican Ministry of Communication & Public Works. One of the important items is the completion of the Kansas City, Mexico & Orient Railway (now Government owned) in the State of Chihuahua. This amounts to the completion of the projected line between Sanchez and San Pedro, providing a through communication at San Blas with the Southern Pacific Railway of Mexico, the impending acquisition of which by the Mexican Government was referred to in our issue of January 15, 1943 (page 74). This Sanchez to San Pedro section will link what have hitherto been termed the Mountain Division (La Junta to Sanchez) and the Pacific Division (San Pedro to Topolobampo) of the Kansas City, Mexico & Orient Railway. It seems that traffic has been discontinued, or at best

is intermittent, on certain portions of this line for some long time past, notably on the 6-mile section between Creel and Sanchez, and on the 40 miles between San Pedro and San Blas. Work is understood to be in hand with this connecting link, and a tentative budget allowance of \$11,850,000 has been set aside for work during the present year. The Ministry of Communications & Public Works has emphasised that the connection is of considerable military and civil importance.

Another project planned for early completion is a link between Acapulco and Magosal, providing a direct line between Mexico City and Tampico. This line was begun some years ago by the National Railways of Mexico, but was suspended by reason of lack of funds. The direct line will enable the running time between Mexico City and Tampico to be reduced to 12 hours from the present 29 hours or more *via* the circuitous route through San Luis Potosi.

Two new railways are reported to be well under way, and total 800 miles. The longer one, 465 miles in length, will connect two Atlantic seaports, namely, Coatzacoalcos (or Puerto Mexico), in the State of Vera Cruz, and Campeche, the capital of the State of Campeche. Because this line is to be built through mountainous country, it is not scheduled for completion before 1949. Presumably the 510 km. (317 miles) shown in the accompanying table represents only a portion of the whole line. The other railway being built is in the north-west and involves 335 route miles through level desert country, of which the principal section is between Santa Ana (Sonora) and Punto Penasco, providing a link with Lower California. It is scheduled for completion in 1945.

Steel rails are imported only when not available locally. Large quantities of steel, however, must be imported for the bridges that require wide plates, as Mexican mills produce none wider than 18 in. Silicon-steel members must also be imported.

In view of heavy wartime traffics which the Mexican railways are required to handle, the Mexican Government is pursuing a policy of acquiring privately-owned railways (even when State operated), so as to bring all the main network under the complete control of the Government. Some details were given at page 74 of our January 15 issue. Among the principal company-operated railways which the Mexican Government is reported to be purchasing are the Mexican Railway, the Southern Pacific of Mexico, and the North Western of Mexico. The first is the standard-gauge link between Mexico City and Vera Cruz, *via* Cordoba, which is essential for through traffic. The second is the great west-coast route between Nogales and Guadalupe. The third is the Ciudad Juarez to Chihuahua line *via* San Pedro and La Junta.

#### MOTOR TRAFFIC CURTAILMENT IN CROATIA.

—As a result of the increasing shortage of motor fuel in Croatia, an Order issued at the beginning of January provides for a further drastic curtailment of motor traffic. Motorcars and motor cycles may now be used only for public services, and no State-owned motor vehicle may be used for private purposes. The number of driving permits is being further reduced as a result of a strict combing-out in recent weeks.



## Ministry of War Transport Accident Report

Near Didcot, G.W.R.: November 13, 1942

Major R. G. S. Wilson inquired into the serious accident which occurred at about 1.45 a.m. on November 13, 1942, about a mile north of Didcot, on the Oxford main line of the G.W.R. The 2.30 p.m. freight train, Swindon to Bordesley, composed of 72 unbraked, loose-coupled wagons, with 16-ton brake, drawn by 4-6-0 passenger engine No. 2975, overran at about 25 m.p.h. the outlet signal of the Appleford down goods loop and became derailed at the trap-points. The engine was overturned clear, but the leading wagons piled up and fouled the adjacent down main line. The 12 midnight Birkenhead express from Paddington, formed of 11 bogie vehicles drawn by 4-6-0 "Castle" class engine No. 4088, was passing on that line at about 45 m.p.h. The five leading vehicles were vans; the engine and the two leading vehicles got through before the line was fouled, but the nine following vehicles struck the derailed wagons, exceptional wreckage resulted and all four tracks at the spot were obstructed.

Trains on these loops are subject to a general speed restriction of 10 m.p.h. and drivers are held responsible for being able to stop short of any obstruction. The loop was clear when the freight train was admitted to it. The entrance points are worked from Didcot North Junction; the exit is under the control of Appleford Crossing box. Sufficient clearance was allowed to permit of the signals being placed immediately to the left of the lines to which they refer. The left-hand arms of signals C and E, and the outlet signal D have lamps with 4 in. lenses; the other signals have the ordinary 6-in. lenses. The curvature from the Swindon direction is continuously left-handed, which adversely affects the view of the signals from the driver's position on the right of the footplate, the G.W.R. practice. Major Wilson found that at the point B (see diagram) from which the freight train started, after certain wagons had been attached, signal C was barely visible to him, riding on an

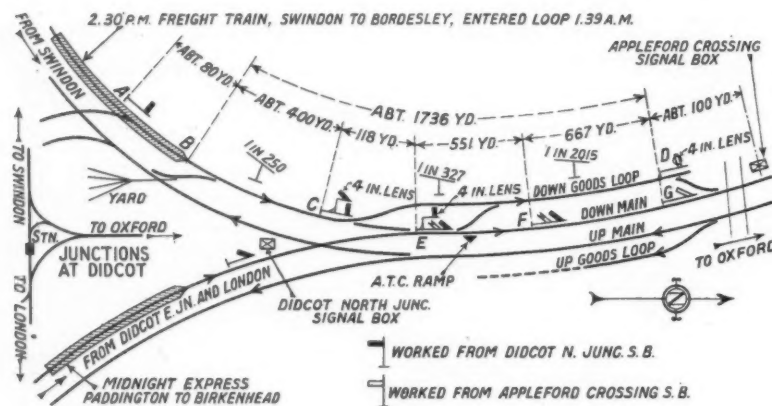


Diagram showing derailment and collision at Appleford Crossing, G.W.R., November 13, 1942

The express driver was unaware of the accident until the parting of the couplings behind the last of the vans applied the brake; his engine and the vans ran about 300 yd. beyond the point of collision and were not derailed. Driver C. G. Forse and Fireman R. A. Jarvis, of the overturned engine, were fatally injured. A porter travelling on duty in the express was killed and one passenger fatally injured; 16 other passengers were injured and taken to hospital, of whom 5 were discharged the same day, and 3 more subsequently complained of shock. Rescue work was promptly undertaken. The task of clearing the lines was protracted. The up main was cleared by 2.50 p.m. the next day, November 14, and the remaining tracks were available 2 hr. later. Normal working on the main lines was resumed 39 hr. after the accident, but the loops were used for some time for loading salvaged goods and wreckage. It was a dark night without moon but with exceptionally good visibility. The layout of the lines and signals involved, with certain other relevant particulars, is shown on the accompanying diagram.

Permissive working is in force on the Appleford down goods loop, which, with the up loop, was constructed as a war measure and brought into use in October, 1941.

engine similar to No. 2975, through the right-hand cab window, clear of the front corner of the engine firebox. From the fireman's side it was then masked by some nearby signal posts. Thence the signal was screened from the driver's view by the boiler but clearly visible to the fireman until passed, after which no other signal applies to a train on the loop until D is encountered. Signal E, Major Wilson found, comes into a driver's view about the time when "C" becomes lost to view, after which he sees F and then G, each at about 500 yd., and D does not, because of the curvature, appear to him until he is about 220 yd. from it, although from the fireman's side of the footplate it can be seen for about 1,000 yd. A heavy pole route obscures it, however, from time to time.

Signalman G. E. Membury, Didcot North Junction, decided to send the freight train forward to be held at the loop outlet signal and await the passage of the express, running a few minutes late. The former drew away slowly, accelerated, and entered the loop at 1.39 a.m.; the express, for which "line clear" was obtained at 1.38 a.m., passed at 1.44 a.m. Signalman W. J. Gough had lowered all his signals for it at Appleford Crossing almost immediately

after accepting it. He noted by the back-light that signal D was properly at danger. (All lights concerned in the case were proved to be burning properly less than an hour after the accident.) Gough stated that he could see headlights approaching which should have been those of the freight, but thought they must be those of the passenger, as the speed was so great. They appeared to be too close together for that, however, so he opened the window, when he could see that they were the freight train's lights; at the same time, he saw those of the express coming. He realised that the freight would not stop at the trap. The crash occurred and he threw all signals to danger and sent "obstruction danger" in both directions, booked as at 1.46 a.m. He did not notice whether the freight engine was running under steam. Its regulator, however, was found closed and the vacuum brake fully applied. The reversing screw was at the forward 45 per cent. cut-off position and there was no evidence of sand having been used. Guard Walker, of the freight, gave evidence covering the previous running of the train and its passage along the loop, which he knew it was travelling on. He did not see the outlet signal, he thought on account of steam. He did not expect that there would be another train on the loop, as he could see no tail lights ahead, and expected they would stop at the outlet signal. He had kept his own brake on from the start, for the falling gradient.

Driver Forse was promoted driver in December, 1941, and transferred from Newport to Didcot. His health and sight were normal. His age was 45. The wreckage indicated that the speed at the moment of derailment was hardly less than 25 m.p.h. It appears that the express was recovering speed after the 40 m.p.h. restriction at Didcot East Junction, and Driver P. G. Matthews's estimate of 45 m.p.h. at the time of the accident was probably fairly correct. Neither he nor his fireman, however, were able to give any further information beyond the fact that they remembered passing the goods train in the loop. Passenger Guard F. Davies, who is 65 years of age, with 51 years' service, had a narrow escape when his brake compartment was wrecked, and had some difficulty in extricating himself. In spite of this he arranged at once for the protection of the down lines and telephoned to the Control Office. The protection of the up main was also promptly dealt with.

### INSPECTING OFFICER'S CONCLUSION

Major Wilson is quite satisfied that the loop outlet signal was properly at danger and its lamp burning satisfactorily. The sole cause of the accident was Forse's failure to stop at it. The speed his train had developed was quite inconsistent with a cautious approach to an adverse signal, with a heavy unbraked train on a falling gradient. It appears reasonable to assume that Forse thought he was on the down main and thus accepted the signals lowered for the express. It is more difficult to understand how he came to be mistaken in the first instance; the directional indication displayed by signal C admitted of no confusion. From the starting point the view of this signal was not good, but about 50 yd. farther it was clearly visible from the fireman's side for a distance of over 300 yd. From momentary lack of concentration, or other reasons, Forse may have been satisfied, either from personal observation or his fireman's assurance, that C was off, without appreciating its directional significance. If so, the unobstructed view of E a little later, with the two full-



sized green lights and small red one to their left, may have led him to suppose that the down main was clear for him. Signals F and G might well have confirmed such an impression, once fixed in his mind, although they were on his wrong side and he received no clear bell signal from the A.T.C. ramp. The position in which the engine controls were found suggests that he may have realised his disastrous mistake at the very last moment, when overtaken by the express.

Major Wilson makes no recommendation in this case, pointing out that the layout is simple, flexible, and convenient; all the signals involved are logically sited to the left of their lines. With the care in observation which is required by the continuous left hand curvature, their view from the footplate is satisfactory. The accident was clearly due to an unexplained and unusual failure of the human element.

## Questions in Parliament

### Civil Air Transport

Mr. O. E. Simmonds (Birmingham, Duddesdon—C.) on February 17 asked the Secretary of State for Foreign Affairs whether His Majesty's Government had entered into discussions with any foreign Power with regard to the international control or operation of air transport after the war.

Mr. Anthony Eden (Secretary of State for Foreign Affairs): No, Sir, though as indicated by the Deputy Prime Minister on February 3, post-war civil aviation is one of the many subjects which will call for consideration with other Governments with a view to reaching an agreement acceptable to all.

Mr. Simmonds: Would the Foreign Secretary give an assurance to the House that before the Government enters into any binding obligations with any foreign Power on this matter they will seek the opinion of the House upon the measures proposed to be taken?

Mr. Eden: I do not think I could give quite that undertaking. Mr. Simmonds will realise that a decision in this respect will be the same as any other international arrangement arrived at, that is, the Government would have to take the responsibility, and it would be open to Parliament to disagree if it so wished.

Mr. W. Gallacher (West Fife—Communist): In view of the 20 years Treaty with the Soviet union, will not this question of air transport be a subject to be discussed under that Treaty?

Mr. Eden: Certainly, the Soviet Government will be one of those with which discussions will have to take place.

Mr. W. W. Wakefield (Swindon—C.) on February 17 asked the Secretary of State for the Colonies what steps he had taken to ensure that all Colonial Governments had experts in up-to-date civil aviation requirements in their secretariats to ensure that reliable information could be given him in connection with the information he had asked for on the question of post-war civil aviation developments in their territories.

Colonel Oliver Stanley (Secretary of State for the Colonies): No such special appointments seem to me to be necessary at present. In replying to my recent inquiry, which was only the preliminary to the preparation of detailed schemes for civil aviation services and ground facilities, Colonial Governments will be guided by the invaluable local knowledge and experience of those of their officers who for a con-

siderable time have been handling regularly all questions of civil aviation. When the time comes to prepare details of routes, landing grounds, and so on, the local authorities will generally need the advice of experts fully informed as to air policy and the capacity and performance of the aircraft which will be available.

Mr. Simmonds on February 17 also asked the Minister without Portfolio what decisions had already been made by His Majesty's Government with regard to British air transport after the war.

Sir William Jowett (Minister without Portfolio) replied that he had nothing to add at the moment to the statements which he made on January 28 in reply to questions by Mr. Ellis Smith (Stoke—Lab.).

Mr. Simmonds: Is the Minister aware that this continued inaction, or apparent inaction, is giving rise to grave alarm, because after the war we must have trade and we cannot have trade without air transport?

Sir W. Jowett: I am fully alive to the urgency of this matter.

Mr. E. Shinwell (Seaham—Lab.): When is the Minister going to reach a decision on this very important matter? Without entering into competition with other nations who are now in alliance with us during the war, have we not got to safeguard our own interests in a vital matter of this kind?

Sir W. Jowett: That was indicated in the answer which I have just given.

Mr. Shinwell: But the Minister appears to be doing nothing in these matters. I am asking him categorically when he is going to reach a decision on the matter? How long will it take?

Sir W. Jowett: I shall reach a decision at the earliest possible moment.

Mr. Ellis Smith (Stoke—C.), on February 25, asked the Minister without Portfolio if his attention had been directed to the acquisition by the railway companies of a major interest in the finance company that controlled British civil aviation; and what action he was taking to safeguard the national interests and to meet the need for the rapid development of civil aviation immediately on the termination of war.

Sir William Jowett: Three of the railways have acquired a controlling interest in British & Foreign Aviation Limited. This company has partly financed certain civil aviation companies operating within the British Isles, but it certainly does not control British civil aviation. The Secretary of State for Air has specific powers under Section 10 of the Air Transport Acts, 1929, to take action if it appears that the powers of the Acts are being used in such a way as to hamper development of civil aviation or against public interests, but I have no reason to think that this transaction will have such an effect.

Mr. Smith: Does the Minister consider that there is monopoly development here, and in view of the effect of monopoly development on the national interest, what steps is he taking to safeguard national interests in the future?

Sir W. Jowett: All those matters will certainly be considered.

Mr. E. Shinwell (Seaham—Lab.): But has the Minister observed that every time he is asked a question about this and other matters affecting post-war policy his reply is that they are going to be considered, but he never tells us that anything is being done.

Mr. H. Holdsworth (Bradford South—Lib. Nat.): Would not private interests do it better than the State?

Mr. A. Edwards (Middlesbrough East—Lab.): Will the Minister tell the House whether he really considers the best inter-

ests of civil aviation and Overseas Airways are being served when the Chairman is also the Chairman of the railway company which is trying to break it up and was Chairman of the finance company.

### Carriage of Cut Flowers by Rail

Commander Stephen King-Hall (Ormskirk—Ind.) on February 23 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that the availability of cut flowers in cities had an aesthetic value which made a substantial contribution to the morale and cheerfulness of the people when displayed in houses and offices; and whether he would consider making arrangements whereby flowers might be sent by rail when space was available which would otherwise not be occupied.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport): I sympathise with Commander King-Hall's purpose, but I regret that his proposal is open to a number of practical objections. Apart from other considerations, the demands on the railways for the conveyance of essential traffic are so heavy that, on this ground alone, I should not feel justified in relaxing the present prohibition on the transport of flowers by rail.

Commander King-Hall: Does the Parliamentary Secretary realise that at present it is impossible to send a small basket of flowers by rail but a passenger can carry them in his luggage?

Mr. Noel-Baker: I am afraid that transport requires so much labour that we really cannot permit it. Apart from that, I think Commander King-Hall has not perhaps seen the last Order made controlling the transport of flowers by passengers.

Sir Alfred Beit (St. Pancras South-East—C.): Does the Parliamentary Secretary seriously contend that suburban passenger trains are so very overloaded that they could not carry some of this traffic?

Mr. Noel-Baker: We have to consider the business of flower growing as a whole. We cannot favour one set of people at the expense of another.

Mr. W. S. Liddall (Lincoln—C.) on February 24 asked the Parliamentary Secretary to the Ministry of War Transport if he would consider withdrawing the order which prohibited the conveyance of flowers by train, having regard to the fact that the order, instead of diminishing traffic, had had the effect of increasing it.

Mr. P. J. Noel-Baker in a written answer stated: No, Sir. The order prohibiting the carriage of flowers by rail has saved a great deal of transport, and I should not feel justified in accepting Mr. Liddall's suggestion.

### Fuel Saving and Fares

Mr. T. E. Groves (Stratford—Lab.) on February 23 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware of the saving by railway companies through the discontinuance of the practice of heating trains; and whether he would consult the railway authorities so that such saving could be reflected in fares charged to the travelling public.

Mr. P. J. Noel-Baker stated in a written answer: Normally trains are heated from October 1 until April 30. In order to save fuel, the heating of trains, other than long distance night trains, did not begin this winter until November 1, and will be discontinued after March 31. Apart from other considerations, the saving in expenditure is relatively so small that it would not be practicable to reflect it in a reduction of fares.

## Notes and News

**The Genthin Light Railway.**—The name of the Kleinbahn A.G. of Genthin, Germany, has been changed to the Genthiner Eisenbahn A.G.

**Cost-of-Living Index.**—On February 1, the official cost-of-living index figure was 99 points above the level of July, 1914, and showed no change as compared with January 1.

**Metropolitan Railway Surplus Lands Co. Ltd.**—A dividend of 1 per cent. for the year 1942 is to be paid. No dividend was paid for 1941, but for 1940 the distribution was 1 per cent. The carry forward is £10,830 (£1,470).

**Oldham, Ashton-under-Lyne & Guide Bridge Junction Railway Company.**—The total dividend for the year 1942 on the £40,000 share capital held by the public is 4½ per cent. (same). After allowing for estimated settlement in respect of Government control, there is a net revenue debit of £4,772 (same). The amount receivable from the L.N.E.R. and L.M.S.R. under the terms of the lease is again £6,672.

**Canadian Pacific Railway.**—Gross earnings for December, 1942, were \$24,523,000, an increase of \$3,319,000, and expenses were \$19,329,000 or \$3,216,000 higher. Net earnings at \$5,194,000 were \$103,000 more than for December, 1941. For 1942 aggregate gross earnings amounted to \$256,864,000, an increase of \$35,418,000, and the net earnings of \$48,187,000 were \$2,229,000 greater than for 1941.

**Assistant Technical Costs Officers Required.**—Applications for positions as Assistant Technical Costs Officers in the Technical Costs Branch of a Government department are invited from candidates possessing rate-fixing experience in one or more of certain branches of production, a list of which is given in our Official Notices at page 255; they also must have served an apprenticeship in engineering or an analogous trade.

**Purchase Certificates for Machine Tools.**—The Machine Tool Control states that, to save delay in dealing with demands for machine tools, it is important that firms requiring them by private purchase should make their application to the appropriate regional director of the Machine Tool Control, instead of to the Machine Tool Control headquarters in London. Applications for Government-financed machines must continue to be made through the Services concerned.

**Canteens for L.N.E.R. Staff.**—Before the war there were many staff canteens in operation on the L.N.E.R., and, with the co-operation of the Ministries of War Transport, Labour & National Service, and Food, additional modern canteens for the staff now have been provided by the company at a number of its important centres, for example, Stratford, Temple Mills, Gorton, York, Hull, Doncaster, Darlington, Faverdale, Shildon, and Cowthorpe. Many more are being planned, but progress on these necessarily is determined by the supply of labour and materials available. At the canteens now completed nearly 7,000 persons are accommodated at a time, and some 13,000 hot dinners are served every day. The best possible cooking and service methods, and the latest labour-saving devices, are employed, and new methods are being investigated constantly. The

canteens are proving very popular, and considerably more of the staff make use of them than appeared to be likely when a census was taken in the early stages of the scheme.

**Madrid Metropolitan Railway.**—The company paid a dividend for 1942 of 8 per cent. on the ordinary 40-peseta shares, and of 5 per cent. on the concession shares (*cédulas de concesión*).

**The Dux-Bodenbach Railway.**—The Duchov-Podmokly Railway Company, which has its headquarters at Karlovy Vary (Karlsbad), is redeeming its shares to the total of RM. 22,000.

**Rhodesia Traffic Returns.**—The gross receipts of the Rhodesia Railways Limited for December, 1942, were £499,629, and for the three months from September 30 the aggregate receipts were £1,524,406. The Beira Railway Co. Ltd. reports gross receipts of £70,853 for December last, and an aggregate for the three months from September 30 of £216,129.

**Engineers for Government-Training Courses.**—Engineers with not less than five years' workshop bench or machine experience are invited to apply for courses of training as rate-fixers, planners, and time-study engineers with a view to appointment to the Technical Branch of a Government department. Details are given in our Official Notices at page 255.

**Motor Coaches Limited.**—Creditors of this company, now in voluntary liquidation, are required, on or before March 26, to send in their names and addresses, with particulars of their debts or claims, and the names and addresses of their solicitors, if any, to the liquidator, Mr. Walter Edward Bennett, of Brettenham House, Lancaster Place, Strand, London. This notice is formal only as all known creditors of the company have been or will be paid in full. Particulars of the position of this company, which had been for some years past engaged solely in petroleum haulage, were given in THE RAILWAY GAZETTE of January 8, 1943, page 54.

**Sale of Baked Potatoes on the G.W.R.**—The sale of hot baked-potatoes at Paddington Station has proved so successful—20,000 were sold during the first three weeks—that the idea now has been extended to refreshment rooms throughout the Great Western system. Another interesting experiment has been the sale of potatoes from an insulated container on an Exeter-Plymouth express, and over a thousand have been supplied by this means.

**Coopers Hill War Memorial Prize and Medal.**—This prize, which was founded by members of the Royal Indian Engineering College, Coopers Hill, in commemoration of members of the college who fell during the war of 1914-19, is awarded yearly by the Institution of Civil Engineers and triennially in turn by the Institution of Electrical Engineers, the School of Military Engineering, Chatham, and the School of Forestry, Oxford. It consists of (a) a bronze medal, (b) a parchment certificate of award, and (c) a money prize of the value of about £20, and is awarded for the best paper on a professional subject selected by the council making the award. The triennial award falls this year to the council of the Institution of Electrical Engineers which has decided to invite members to submit for consideration a paper on any subject coming within the scope of electrical science or electrical engineering and their applications. Papers must reach the Secretary of the institution not later than September 1, 1943. Only corporate mem-

bers of the institution, under 35 years of age on January 1, 1943, are eligible. All papers submitted will be considered also with a view to publication in the *Journal* of the institution. Any papers accepted for that purpose would then become eligible for consideration in connection with the ordinary premiums awarded by the council at the end of each session.

**Basic-Wage Increase on Western Australian Railways.**—On October 30, 1942, the State Arbitration Court declared an increase of 2s. 10d. a week in the basic

## British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices	
			Feb. 26, 1943	Rise/ Fall
G.W.R.				
Cons. Ord. ....	58	39	95	- 2½
5% Con. Pref. ....	115½	105½	118½	—
5% Red. Pref. (1950) ..	133½	123½	108½	- 1
5% Rt. Charge ....	130½	121½	133½	—
5% Cons. Guar. ....	130½	121½	133½	- 1½
4% Deb. ....	117	105	117	+
4½% Deb. ....	118	108	116½	—
4½% Deb. ....	125	113	121½	—
5% Deb. ....	137	126	137	+ 2
2½ Deb. ....	77	70	75	—
L.M.S.R.				
Ord. ....	28½	16½	30	+ ½
4% Pref. (1923) ....	63½	50½	61	- 1
4% Pref. ....	76½	67½	76	—
5% Red. Pref. (1955) ..	103½	94½	104½	—
4% Guar. ....	104½	97½	104½	—
4% Deb. ....	108½	101½	108½	—
5% Red. Deb. (1952) ..	111	107½	110½	—
L.N.E.R.				
5% Pref. Ord. ....	9½	2½	8½	+ ½
Def. Ord. ....	5	1½	4½	+ ½
4% First Pref. ....	62	49½	60½	- 2½
4% Second Pref. ....	32½	18½	32½	—
5% Red. Pref. (1955) ..	95½	79	94½	- 1
4% First Guar. ....	98	88	99	- ½
4% Second Guar. ....	90	78	90	—
3% Deb. ....	85	76	85	—
4% Deb. ....	106½	100½	107	- 1
5% Red. Deb. (1947) ..	106	103	104½	—
4½% Sinking Fund Red. Deb. ....	106	102½	106½	—
SOUTHERN				
Pref. Ord. ....	77	61½	75½	- 2
Def. Ord. ....	23½	14½	22	- 1½
5% Pref. ....	112½	104	116½	- 1
5% Red. Pref. (1964) ..	110½	105½	110½	- 1
5% Guar. Pref. ....	131	121½	133½	- 1
5% Red. Guar. Pref. ....	115½	109½	114½	- 1
4% Deb. ....	116	104½	116	—
5% Deb. ....	134	125½	135	—
4% Red. Deb. (1962- 67) ....	110½	106	110½	—
4% Red. Deb. (1970- 80) ....	111	106½	110½	—
FORTH BRIDGE				
4% Deb. ....	109½	108	108	—
4% Guar. ....	105½	100	104½	+ 1
L.P.T.B.				
4½% "A" ....	122½	111	123½	—
5% "A" ....	131½	122	131½	—
3% Guar. (1967-72) ..	95½	97½	100½	—
5% "B" ....	121	114½	121½	—
"C" ....	56½	38	57½	—
MERSEY				
Ord. ....	27½	20½	28	—
3% Perp. Pref. ....	61½	56½	60	+ 1
4% Perp. Deb. ....	102½	99½	104	—
3% Perp. Deb. ....	80½	76	79	—
IRELAND BELFAST & C.D.				
Ord. ....	9	4	9	—
G. NORTHERN				
Ord. ....	29½	12½	17½	- 2
G. SOUTHERN				
Ord. ....	25	10	12	+ 2
Pref. ....	29	12½	14	- 1½
Guar. ....	53	35½	32½	- 5
Deb. ....	71½	55½	60	- 2

§ ex-dividend



## OFFICIAL NOTICES

**ENGINEERS** who have had not less than 5 years' workshop experience on bench or machine required for training as rate-fixers, planners, and time-study engineers for ultimate appointment to the Technical Costs Branch of a Government Department.

The course of training will be given in factories producing aircraft, aero engines, instruments, guns, gun-mountings, tank hulls, armoured cars, tank engines and gear boxes. Training will be of approximately six months' duration.

Applicants should be between the ages of 25 and 40 and preferably have served an apprenticeship in engineering or an analogous trade.

Salary (£300-£400, plus war bonus (£19 12s.), according to experience, plus lodging allowance where applicable, will be paid to suitable candidates during period of training.

Applications (in writing only—not personal) should in all cases give details of age, education, experience and qualifications, together with name and address of present employers, quoting reference Number Q.362. S. They should be addressed to

Ministry of Labour and National Service,  
(Appointments Department),  
Sardinia Street,  
Kingsway,  
London, W.C.2.

**ASSISTANT** Technical Costs Officers required for Technical Costs Branch of a Government Department.

Candidates must have adequate up-to-date rate-fixing experience in one or more of the following branches of production, and have served an apprenticeship in engineering or analogous trade.

Forging and drop stamping on medium and light work.

Machining, fitting and erection on tank hulls, airframes, gun mountings, armament works, torpedo work, aero, and tank engines, tank gear boxes and machining on small repetition work.

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Headquarters in London with duty visits to provinces.

Salary £300-£320, according to experience.

Applications (in writing only—not personal) should in all cases give details of age, education, experience and qualifications, together with name and address of present employer quoting reference number Q.278. S. They should be addressed to:—

Ministry of Labour and National Service  
(Appointments Department),  
Sardinia Street,  
Kingsway,  
London, W.C.2.

## OFFICIAL ADVERTISEMENTS

**OFFICIAL ADVERTISEMENTS** intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—  
*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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wage, thereby raising the rate from £4 14s. 11d. to £4 17s. 9d. a week for males, and from £1 11s. 3d. to £2 12s. 9d. for females. The effect of this increase will be a rise of approximately £50,000 a year in the working expenses of the Western Australian Railway Department.

**The Eversfield Chest Hospital.**—In a letter published in the current issue of the *Southern Railway Magazine*, Mr. E. C. Cox, former Traffic Manager, Southern Railway, made an appeal for subscriptions and donations towards the cost of maintaining the Eversfield Chest Hospital. The hospital, which has been closed for the past two years because of its exposed position on the Sussex coast, has been available, for nearly 40 years, to men of the Southern Railway who have fallen victims to tuberculosis. More than one hundred men have been admitted for periods of between two and twelve months. Excellent results have been achieved. The buildings and expensive equipment are undamaged and must be kept in good order, so that the hospital can be re-opened directly sanction is granted. Gifts should be sent to the Secretary, Eversfield Chest Hospital, St. Leonards-on-Sea.

**Public-Utility Undertakings in Portugal.**

—A Bill, designed to secure the nationalisation of foreign-owned public-utility undertakings in Portugal, is under consideration by the House of Assembly. If it is passed, the Bill will affect six companies, including the Anglo-Portuguese Telephone Co. Ltd., and the Lisbon Electric Tramways Limited, both of which are British-owned. These concerns, together with the Belgian-controlled Lisbon Gas & Electricity Company, represent capital of about £10,000,000. It is proposed that the rights of foreign capital and interests in foreign-controlled concerns be respected as far as possible, but that when shares are transferred preference should be given to Portuguese buyers; and that shareholders wishing to participate in company meetings should do so only when their bonds have been deposited with the Portuguese office of the company, or of a Portuguese bank, eight days previously. The measure further seeks to secure that the head offices of the six companies concerned should be transferred to Portugal; that only Portuguese companies should be able to acquire and instal public-utility undertakings (which should have at least 65 per cent. of Portu-

guese capital, and Portuguese presidents and managers); and that shares held in Portuguese public-utility companies by citizens of that country never should be sold to foreigners.

**Flowers by Train.**—In a letter published in *The Times* of February 27 Mr. G. Cole Deacon, Secretary, Railway Executive Committee, gave some idea of the volume of flower traffic conveyed by the main-line railways in the third year of the war. For the period January to June, 1942, dispatches of cut flowers from the principal growing areas to the principal markets throughout the country weighed over 9,000 tons, and for these flowers 8,000 vans were required. Many of the vans were attached to ordinary passenger trains, but, in addition, 365 special flower trains were run.

**"Wings for Victory" Week.**—In connection with the campaign to be known as "Wings for Victory" Week which is to be inaugurated by the London week (from March 6 to 13), the Lord Mayor of London states that, at the meeting held in the Mansion House in January, he announced a target of £150,000,000, which is just over the amount reached in "Warships Week." He urges greater sacrifice and a redoubling

of the response to the appeal of the Chancellor of the Exchequer.

**Brush Electrical Engineering Co. Ltd. Engineering Scholarships.**—A number of engineering scholarships, each to the value of £75 a year, and tenable for four years, is available for award. The first year is spent in the company's works at Loughborough. In addition to the university work leading to a degree, the course provides training in the various departments of the company covering the production of steam turbines and turbo-alternator sets; electrical machines and switchgear; large and small internal-combustion engines; and coachwork, covering bus, coach, and tram bodies, rail vehicles, and general-transport bodywork. The company's policy is to give specialised training to the future engineers of the country and Empire, and to suit them for entry as operating engineers for power-supply companies, road-transport undertakings, steelworks, and so on, by providing courses including the work in two or more of the main departments mentioned. Applications for scholarships should reach the company before May 31, 1943. An outline of the courses available is given in the company's publication "Engineering as a Career."



*Engineering delegates from Turkey, who have been visiting England, inspected Swindon Works, G.W.R., on February 24. Members of the delegation are seen on a locomotive of the "King" class, decorated with the flags of the two countries*



### Railway Stock Market

Although there has been only slight improvement in the volume of Stock Exchange business, the general undertone in security values has been firmer. The profit-taking in home-railway securities after the dividend statements which reduced prices sharply last week, was checked, as buyers were attracted by the very generous yields obtainable on the junior stocks. Good recovery from last week's set-back was shown by L.N.E.R. second preference and L.M.S.R. ordinary, but Southern deferred remained rather out of favour, and London Transport "C" also regained only a small part of their recent sharp decline. The view has gained ground that, during the currency of the rental agreement with the Government, it may be prudent to assume that dividends of the main-line companies will be stabilised at last year's rates, except perhaps in the case of L.N.E.R. second preference, where there may be possibilities of a further fractional improvement in the dividend. There is, in any case, very little scope for the development of speculative activity in home-railway stocks on the basis of estimates as to the dividend outlook for the current year. This, however, does not mean that there is little likelihood of appreciation in prices, because, when there is sustained activity in Stock Exchange markets, yield considerations no doubt will draw much-increased attention to home railway stocks. There would appear to be no

justification for the present valuation of the junior stocks on a substantially-higher yield basis than in the case of any other widely-held group of equity securities. There is, of course, uncertainty as to post-war plans for the transport industry, but, in any developments which may be in store after the war, consideration would have to be given to the railways' right to the standard revenue of the Act of 1921. In fact, it is improbable that the post-war outlook for the railways is any more difficult to assess than that of many industrial companies whose shares now are valued on a very low yield basis. L.M.S.R. 1923 preference and L.N.E.R. first preference so far have not shown recovery from their recent decline, but their investment merits and good yields can be expected to attract buyers. There was a small rally in Southern preferred, which yield nearly 6½ per cent. The accounts of the main-line railways had little influence on the stock market, and the disposition has been to await the statements at the annual meetings. Perhaps the most interesting feature of the accounts is the appearance of trust funds for arrears of maintenance of expenditure.

Compared with a week ago, Great Western ordinary has improved from 59 to 59½ at the time of writing. The 5 per cent. preference and guaranteed stocks were also fractionally higher at 118 and 134 respectively; the 4 per cent. debentures

held their recent improvement to 117. L.M.S.R. ordinary was favoured, and on balance moved up from 29½ to 30½, as buyers were attracted by yield considerations. On the other hand, L.M.S.R. senior preference was unchanged at 76½, and the 1923 preference maintained at 62; the guaranteed stock was again 104½, and the 4 per cent. debentures, 108. Despite the apparently-generous yield, L.N.E.R. first preference was unchanged at 61, but yield considerations brought in buyers for the second preference, which on balance gained two points to 33. Firmness was maintained in the guaranteed stocks, and, elsewhere, there was a revival of a little speculative activity in L.N.E.R. preferred and deferred as a low-priced means of participating in the trend of home-railway stocks. Southern deferred at 22½ regained a small part of the recent sharp decline; after a further decline, the preferred ordinary recovered to 75. London Transport "C" was 54½, compared with 54½ a week ago.

There were few movements among foreign railway securities. Leopoldina debentures remained active on hopes of a further payment in respect of interest arrears. Central Uruguay stocks were under the influence of the favourable trend in traffics and United of Havana debentures had a firmer appearance. San Paulo ordinary was better at 60; the dividend announcement is due in a few weeks. Moderate improvement was shown in Canadian Pacifics.

### Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to date			Shares or Stock	Prices			
			Total this year	Inc. or Dec. compared with 1941/2		Totals		Increase or Decrease		Highest 1942	Lowest 1942	Feb. 26, 1943	Yield % (See Note)
						1942/3	1941/2						
South & Central America													
Antofagasta (Chili) & Bolivia	834	21.2.43	27,640	+ 18,960	8	216,150	144,910	+ 71,240	Ord. Stk.	14	7½	11	Nil
Argentine North Eastern	753	21.2.43	10,032	+ 1,854	34	421,200	362,436	+ 58,764	"	6½	3	6	Nil
Bolivar	174	Jan., 1943	5,292	+ 1,854	4	—	—	—	6 p.c. Deb.	19½	10	19	Nil
Brazil	—	—	—	—	—	—	—	—	Bonds	20½	9	20½	Nil
Buenos Ayres & Pacific	2,807	20.2.43	115,200	+ 6,900	34	3,234,240	2,837,220	+ 397,020	Ord. Stk.	7½	4	6	Nil
Buenos Ayres Great Southern	5,080	20.2.43	207,303	+ 35,700	34	5,314,740	4,832,340	+ 482,400	Ord. Stk.	12½	7½	10½	Nil
Buenos Ayres Western	1,930	20.2.43	55,680	+ 5,040	34	1,802,340	1,721,580	+ 80,760	"	12½	6	11	Nil
Central Argentine	3,700	20.2.43	148,392	+ 45,342	34	4,456,569	3,592,323	+ 864,246	"	9½	4½	7½	Nil
Do.	—	—	—	—	—	—	—	—	Dfd.	3½	2½	4½	Nil
Cent. Uruguay of M. Video	972	20.2.43	39,272	+ 13,407	34	870,155	798,849	+ 71,306	Ord. Stk.	8	4	6½	Nil
Costa Rica	262	Jan., 1943	16,637	+ 6,836	31	96,550	159,462	+ 62,900	Ord. Stk.	16½	11	13½	Nil
Dorada	70	Jan., 1943	6,000	+ 3,530	4	—	—	—	1 Mt. Db.	90½	89	89½	Nil
Entre Rios	808	21.2.43	15,666	+ 2,748	34	611,566	528,822	+ 82,744	Ord. Stk.	33	4½	6½	Nil
Great Western of Brazil	1,030	20.2.43	16,800	+ 6,100	7	128,700	93,000	+ 35,700	Ord. Sh.	9/-	9/-	33/9	Nil
International of Cl. Amer.	794	Nov., 1942	\$481,524	+ \$50,446	52	\$55,534.18	\$5,097,659	+ \$456,659	—	—	—	—	Nil
Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1½	5/3	2	Nil
La Guaira & Caracas	22½	Jan., 1943	9,435	+ 3,005	4	9,435	6,430	+ 3,005	5 p.c. Deb.	11½	5	81½	Nil
Leopoldina	1,918	20.2.43	29,885	+ 4,202	7	222,097	213,861	+ 8,236	Ord. Stk.	6½	3½	5	Nil
Mexican	483	21.2.43	ps. 303,900	+ ps. 42,300	7	ps. 2,206,500	ps. 2,448,800	+ ps. 242,300	Ord. Stk.	1	—	1½	Nil
Midland Uruguay	319	Dec., 1942	15,294	+ 2,038	27	621,158	618,694	+ 2,464	—	—	—	—	Nil
Nitrato	382	15.2.43	6,190	+ 1,630	6	18,341	15,595	+ 2,745	Ord. Sh.	77/	3½	79/-	Nil
Paraguay Central	274	19.2.43	\$3,866,000	+ \$587,000	34	\$130,121,000	\$116,193,000	+ \$13,928,000	Pr. Li. Stk.	53	40	50½	Nil
Peruvian Corporation	1,059	Jan., 1943	85,767	+ 5,338	28	583,434	512,971	+ 70,463	Pref.	19½	5½	15½	Nil
Salvador	100	Dec., 1942	c 112,000	+ c 5,000	26	c 432,000	c 361,172	+ c 70,828	—	—	—	—	Nil
San Paulo	153½	14.2.43	36,492	+ 2,952	7	228,085	234,163	+ 6,078	Ord. Stk.	59	41	59	3½
Taitai	160	Jan., 1943	3,330	+ 195	29	34,416	30,895	+ 3,521	Ord. Sh.	41/-	23/4	32/6	Nil
United of Havana	1,346	21.2.43	57,922	+ 6,251	33	1,565,651	740,665	+ 824,785	Ord. Stk.	8½	2½	6½	Nil
Uruguay Northern	73	Dec., 1942	1,595	+ 311	27	59,817	60,757	+ 940	—	—	—	—	Nil
Canada													
Canadian Pacific	17,039	21.2.43	924,800	+ 55,000	7	6,597,400	6,392,800	+ 204,600	Ord. Stk.	16½	9½	14½	Nil
India & Far East													
Barak Light	202	Jan., 1943	22,440	+ 10,612	42	172,958	135,863	+ 37,095	—	—	—	—	Nil
Bengal & North Western	2,090	Nov., 1942	264,975	+ 33,087	8	449,400	561,082	+ 111,682	—	—	—	—	Nil
Bengal-Nagpur	3,267	30.9.42	275,550	+ 17,775	26	5,085,678	4,788,758	+ 296,920	Ord. Stk.	102½	88	102½	3½
Madras & Southern Mahratta	2,939	10.12.42	219,525	+ 8,058	24	5,914,276	4,996,457	+ 917,819	"	105½	87	108½	5½
Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	—	—	—	—	Nil
South Indian	2,402	30.9.42	185,811	+ 31,733	26	3,293,328	2,670,410	+ 622,918	"	103½	88½	102½	4½
Various													
Egyptian Delta	607	20.1.43	14,821	+ 2,325	43	373,655	272,885	+ 100,770	Pr. Sh.	5½	1½	4	Nil
Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	37½	9½
Midland of W. Australia	277	Dec., 1942	30,416	+ 11,471	24	190,328	122,537	+ 67,791	Inc. Deb.	95	90	93½	6
Nigerian	1,900	31.10.42	60,590	+ 13,688	31	1,833,420	1,542,694	+ 290,726	—	—	—	—	Nil
South Africa	13,291	5.12.42	796,375	+ 33,879	37	28,131,557	27,134,897	+ 996,660	—	—	—	—	Nil
Victoria	4,774	Oct., 1942	1,445,531	+ 309,932	—	—	—	—	—	—	—	—	Nil

Notes. Yields are based on the approximate current prices and are within a fraction of ½  
† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in sterling calculated @ 16½ pesos to the £  
§ ex dividend